



ALLEY-GATOR RIGHT-HAND™

MAINTENANCE MANUAL





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Introduction

About this Manual

This manual is designed to help qualified maintenance personnel repair, service and maintain the ALLEY-GATOR RIGHT-HAND™. It outlines maintenance procedures for body and packer components.

It is imperative that you carefully review this manual prior to performing any maintenance to your new ALLEY-GATOR RIGHT-HAND™ Automated Side Loader.

For information regarding operational procedures, please refer to the ALLEY-GATOR RIGHT-HAND™ Operator's Manual.

Topics not Included in this Manual

Maintenance of the chassis

This is dealt with in the chassis manufacturer's service manual.

Cameras and backing-accident prevention systems

For these options, refer to the appropriate manufacturer's service manual.

Parts and assemblies

For parts and assemblies of the ALLEY-GATOR RIGHT-HAND™, and their respective part number for ordering purposes, please refer to the ALLEY-GATOR RIGHT-HAND™ Parts Manual.

About the Schematics

For schematics of all the body parts, refer to the ALLEY-GATOR RIGHT-HAND™ Parts Manual;

For electrical schematics, refer to the schematics provided with your ALLEY-GATOR RIGHT-HAND™ unit;

For pneumatic and hydraulic schematics, refer to the schematics provided with your ALLEY-GATOR RIGHT-HAND™ unit.

NOTE: A number of system schematics are included in this manual.

About the illustrations in this manual

Because Labrie Enviroquip Group is constantly updating its products, illustrations used in this manual may differ from those of the actual product and accessories, depending on the model or options that come with your vehicle.

Introducing the ALLEY-GATOR RIGHT-HAND™

The ALLEY-GATOR RIGHT-HAND™ is a straight-frame, side-loading vehicle, manufactured to the highest standards, designed to fully automate the collection of residential and commercial trash and organics.

The ALLEY-GATOR RIGHT-HAND™ uses a special type of packing system that is perfect for organic collection: the Pendulum Packer system.

Also, the ALLEY-GATOR RIGHT-HAND™ offers a wide array of features: its hopper is leak free, has no blade and no clean-out door. The single stage packing cylinders are located outside the hopper protected from trash and waste products. The Pendulum packing system eliminates trash “build-up” behind the packing panel allowing the hopper to “self-clean”; hence no need for the operator to clean behind the blade.

MDM Control Module

Labrie has equipped your ALLEY-GATOR RIGHT-HAND™ unit with a CAN bus-based MDM control module which has been designed to help you operate your unit in an efficient and easy way. The MDM control module monitors various function status of the body and displays many warnings as well as other information such as the hours of operation of the ALLEY-GATOR RIGHT-HAND™ and the number of bins emptied into the hopper.

The MDM control module is fully programmable. It has function and control buttons as well as a graphical display which informs the operator of the status of the different functions of the truck and of any potential problems.

If an error occurs, the module will warn the operator with a signal, and a message will appear on the display screen.

All communication with the control system takes place from the MDM via the CAN-bus network.

NOTE: The MDM Control Module comes in two types: one is fixed atop the doghouse, the other is built in the doghouse (see Figure 1-1). Either type works the same.

Figure 1-1 MDM control module (standard version, left; built-in version, right)



Danger and Caution Lamps on the Control Console

Danger Lamp

This lamp will illuminate whenever the following occurs:

- ◆ The tailgate is ajar
- ◆ The body is raised
- ◆ The packer blade is stalling
- ◆ The access ladder is deployed (if equipped)
- ◆ The hydraulic oil is too hot

Figure 1-2 Danger lamp



Caution Lamp

This lamp will illuminate whenever the following occurs:

- ♦ The hopper cover (top door) is not open (if installed)
- ♦ The arm is not parked

Figure 1-3 Caution lamp



Pre-operating Instructions

Upon receipt of your new ALLEY-GATOR RIGHT-HAND™, perform a complete lubrication as per the lubrication guide shown on page 37 and on the decal affixed to the side of the body. Factory lubrication is adequate for production and transport purposes only. In addition, the return filter element must be replaced after 50 hours of use, again, as per instructions shown on page 34.

To Contact Labrie Plus

In the U.S.

Address:	1198 Shattuck Industrial Blvd. LaFayette, GA 30728
Toll Free:	1-800-231-2771
Telephone:	1-920-233-2770
General Fax:	1-920-232-2496
Sales Fax:	1-920-232-2498
Parts and warranty:	During business hours, 8:00 AM to 6:00 PM Eastern Standard Time
Technical Support Service:	Available 24 hours

In Canada

Address:	175A Route Marie-Victorin Levis, QC G7A 2T3
Toll Free:	1-877-831-8250
Telephone:	1-418-831-8250
Service Fax:	1-418-831-1673
Parts Fax:	1-418-831-7561
Parts and warranty:	During business hours, 8:00 AM to 5:00 PM Eastern Standard Time
Technical Support Service:	Available 24 hours
Website:	www.labriegroup.com
E-mail:	sales@labriegroup.com

IMPORTANT: For technical support and parts ordering, the serial number of your vehicle is required. Therefore, Labrie Enviroquip Group recommends to keep record of the information found on the VIN plate, which is located in the cab.



Safety

Safety comes first and Labrie Enviroquip Group is committed to your safety. Ultimately, safety is everyone's responsibility when operating or maintaining your ALLEY-GATOR RIGHT-HAND™ Automated Side Loader. Make it your first priority! Be aware and apply the safety practices and features detailed in this manual.

Maintenance personnel should not perform any maintenance on the equipment if they are not well acquainted with the operations of the equipment as well as all safety precautions related to such operations.

Labrie Enviroquip Group will not accept any responsibility for failures and/or injuries caused by repairs done by the user and/or any persons other than authorized Labrie Enviroquip Group representatives.

Safety Precautions for the Owner

Labrie Enviroquip Group strongly believes that safety is a team effort. With this in mind, we encourage the employer to implement the following guidelines:

- ♦ Provide all employees – both operators and maintenance personnel – with proper safety procedures and training. Ensure that they are provided with the proper vehicle operation training and continually monitor their operational procedures. It is necessary that they have reviewed the ALLEY-GATOR RIGHT-HAND™ Manuals and are familiar with all the warning decals on the vehicle.
- ♦ Provide operators with the necessary route rules and regulations. Instruct operators on awareness to road hazards such as people, obstructions and overhead hazards. Please ensure that all vehicle safety features, such as body safety prop and tailgate prop, are utilized by your personnel when operating or servicing the ALLEY-GATOR RIGHT-HAND™.
- ♦ Provide and inform employees to wear the necessary safety equipment.

- ◆ Ensure that a vehicle and safety equipment inspection is performed daily. Document the inspections, including all maintenance, repair and malfunction items. Keep inspection documents complete and current.

IMPORTANT: Under no circumstances should your ALLEY-GATOR RIGHT-HAND™ be operated if damaged or malfunctioning. Have all repairs performed immediately.

Safety Precautions for the Employee

As an operator or maintenance employee, it is your responsibility to follow these guidelines:

- ◆ Ensure that you have been provided with safe operating and/or maintenance service training and procedures by your employer prior to operating the vehicle or performing maintenance service.
- ◆ Carefully read this manual.
- ◆ Obey proper operating procedures, safety guidelines and warning decals.
- ◆ Use the vehicle only as intended.
- ◆ Perform a daily vehicle inspection that includes the body and all operating systems, all vehicle safety equipment and safety decals located on and in your vehicle. Ensure that the inspection is documented and bring any defects to the attention of your supervisor.
- ◆ Prior to leaving for your daily route, ensure that all mirrors, windows and lights are clean and properly adjusted. Ensure that all cameras and monitors are properly adjusted and operating correctly.
- ◆ Do not operate any vehicle while under the influence of alcohol, narcotics or other intoxicants.
- ◆ Do not leave the vehicle before it is brought to a complete stop and work brake or parking brake is applied.
- ◆ Know where to get assistance in the event of an emergency.
- ◆ On your daily route, or during your service duties, stay safe. Obey all safety decals and safe operating procedures. Watch for other people, obstructions and overhead hazards.
- ◆ Always utilize the vehicle safety features, such as tailgate prop and hoisted body prop.
- ◆ Remember to wear all safety equipment when loading and packing refuse or while performing service duties.

IMPORTANT: Under no circumstances should you operate damaged or malfunctioning equipment. Report all malfunctions to your supervisor immediately.

ALLEY-GATOR RIGHT-HAND™ Road Rules

Rule the road with safety. Stay safe and help keep those around you safe. Know and obey the route rules and regulations provided by your employer and follow these important guidelines. As an operator or mechanic you should never do the following:

- ◆ Drive with the body raised.
- ◆ Drive with an unlocked tailgate.
- ◆ Exit the cab without engaging the chassis parking brake.

- ♦ Back up the truck while unloading refuse.
- ♦ Hoist the body while on uneven ground.
- ♦ Prop a loaded body with the hoist safety prop.
- ♦ Enter the hopper or main body unless the engine is shut off, the key is removed and there is an out-of-service tag on the steering wheel.
- ♦ Stand under a raised body without the safety prop in place.

Safety Decals

Pay careful attention to all safety decals and warnings while operating/working in and around the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader. Keep your decals clean and in good condition at all times. For replacement decals, either individual or complete decal kits, call LabriePlus at 1-800- 231-2771 in the U.S. or 1-877-831-8250 in Canada, and order using the part numbers as printed on the bottom of the decal. Bilingual decals are available in English/Spanish or English/French versions.

See the *Alley-Gator Right-Hand Operator's Manual* for a list of decals that are used on the truck. Be sure to familiarize yourself with these decals.

Safety Features

NOTE: Your unit may not have all the safety features explained here. Check with your supervisor or maintenance department if you have any questions or concerns.

Automatic Grease System

When properly maintained, this optional system automatically ensures that the custom selected points either on the body or chassis receive the required amount of grease.

Counter Balance Valves

Counter balance valves provide a hydraulic lock to prevent the lift cylinders from bleeding oil back into the system. The resulting loss of pressure can result in hydraulic cylinder 'creepage' or an uncontrolled fall of the lift. Also, the counter balance valves will prevent the cylinder from retracting in the event of hose failure.

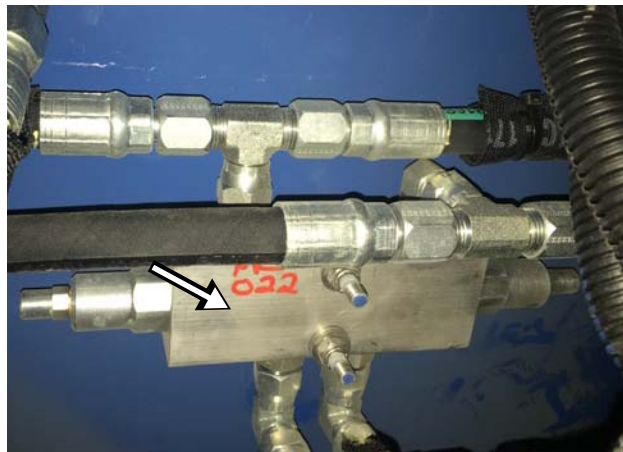
Grease Manifold

The centrally mounted grease manifold provides external grease nipples for all internal grease points, which removes the need for maintenance personnel to enter the body to grease cylinders and pivot points.

Figure 2-1 Grease manifold

Counterbalance Valves

Counterbalance valves prevent the discharge of oil out of a cylinder in the event of hose failure (see Figure 2-2).

Figure 2-2 Counterbalance valve

Environmental Spill Kit (optional)

This kit is used to contain hydraulic oil or diesel spill due to component failure. Consult with your maintenance and safety personnel for availability and location (see Figure 2-3).

Figure 2-3 Optional environmental spill kit



Access Ladder Proximity Switch (optional)

Installed on the access ladder, this proximity switch disables/locks out all hydraulic functions when the ladder is deployed.

NOTE: Only on units equipped with an access ladder.

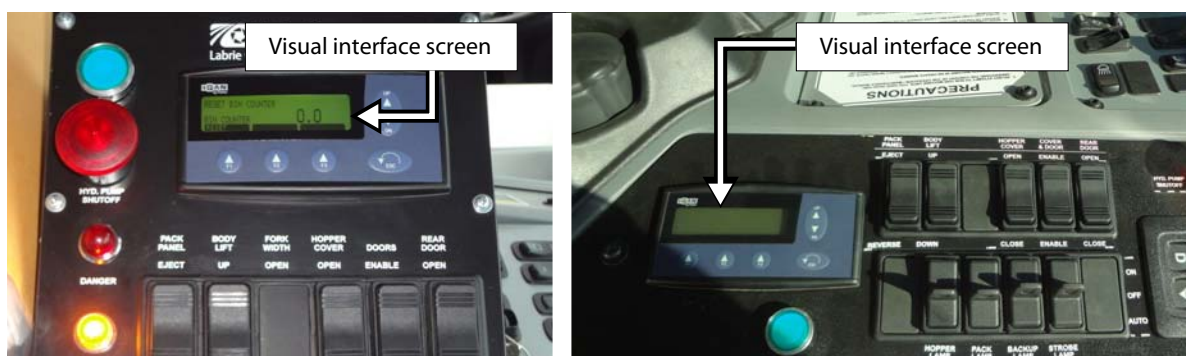
Figure 2-4 Extension ladder proximity switch with ladder deployed (left) and in stored position (right)



IQAN MDM Master Control Module

The ALLEY-GATOR RIGHT-HAND™ is equipped with an in-cab IQAN MDM.

Figure 2-5 The IQAN MDM (standard and built-in models)



The IQAN MDM is the main unit of the central control system. It contains the system's application software. In addition, the MDM contains a visual interface screen that displays text, parameters and other settings. All communication with the control system takes place from the MDM via the CAN-bus network.

Various error and warning messages may appear on the IQAN MDM screen to warn the operator to certain conditions. In some cases an accompanied buzzer sounds. Those messages are similar to the following:

ARM NOT PARKED: This warning message will appear on the screen when the arm is extended and is not in the home position. ***If the vehicle is in motion and the arm is not parked, pedestrians may be injured and/or other obstacles may be struck.***

PACKER BLADE STALL: This warning message will appear on the screen if the packer blade has stalled. ***Stalling will occur if the body is full or if an object has jammed the packer blade.***

BODY RAISED: This warning message will appear on the screen and a buzzer will sound if the body is not firmly seated on the chassis. ***The body should only be raised during unloading and maintenance.***

TAILGATE OPEN: This warning message will appear on the screen and the backup alarm will sound if the tailgate is not fully closed. ***The tailgate should only be open during unloading and maintenance.***

ACCESS LADDER: Your ALLEY-GATOR RIGHT-HAND™ may be equipped with an access ladder. If so, this warning message will appear on the screen and a buzzer will sound when the access ladder is deployed. ***All hydraulic functions become disabled when the access ladder is deployed.***

HYDRAULIC OIL TEMPERATURE: This warning message will appear on the screen and a buzzer will sound if the hydraulic oil temperature becomes dangerously high. ***Continuing to operate the hydraulic functions may result in serious damage.***

HOPPER COVER: Your ALLEY-GATOR RIGHT-HAND™ may be equipped with a hopper cover. If so, a warning message will appear on the IQAN MDM screen to alert you that the hopper cover is closed.

Fire Extinguisher

The employer must inform and train all personnel on the measures that must be taken in case of a vehicle and/or loaded body catching fire.

Anytime a loaded vehicle is *brought inside a garage*, fire extinguishers shall be close at hand.

The employer must also inform employees of an appropriate place to unload the body near the maintenance facility (preferably away from traffic, surface drains, and ditches).

ALLEY-GATOR RIGHT-HAND™ vehicles are equipped with a 5-lb fire extinguisher, which is located inside the cab. A 20-lb fire extinguisher may also be installed as an option. Each fire extinguisher must be checked regularly by qualified personnel.

Figure 2-6 5-lb fire extinguisher



First Aid Kit (optional)

Your vehicle should be equipped with a first aid kit. It should be placed inside the cab for quick access.

Figure 2-7 First aid kit



Triangle Kit

A triangle kit is provided with the truck.

Figure 2-8 Triangle kit



Global Motion Sensors (optional)

The global motion sensors are an optional feature. The sensors are mounted on the tailgate of your ALLEY-GATOR RIGHT-HAND™. The sensors detect obstructions from behind your vehicle and will then set the service brake and sound a buzzer to alert the operator of the rear obstruction. Please consult your Labrie distributor/dealer for more information.

Rear Vision Camera (optional)

The reverse camera mounted on the back door of the ALLEY-GATOR RIGHT-HAND™ sends images to the monitor inside the cab when the transmission is in reverse or when the switch is set to 'ON'. Please consult your Labrie distributor/dealer for more information.

Figure 2-9 Rear vision camera



Hopper Camera/Side Door Camera (optional)

The hopper and side door cameras send information to the monitor inside the cab when the monitor is selected to the proper camera. Please consult your Labrie distributor/dealer for more information.

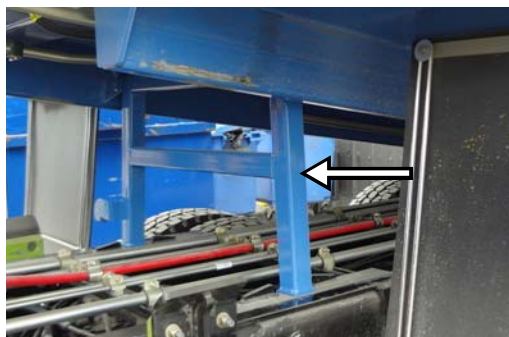
Figure 2-10 Hopper Camera (optional) left/Side door camera (optional) right/Camera monitor (inside cab) center



Hoist Safety Prop

Your ALLEY-GATOR RIGHT-HAND™ is standardly equipped with a hoist safety prop (see Figure 2-11). Prior to performing any work around/underneath a lifted body, you must set the hoist safety prop. Never use the hoist safety prop to prop a loaded body. Always unload the body prior to setting the hoist safety prop. Refer to “Stabilizing a Hoisted Body” on page 24.

Figure 2-11 Hoist safety prop



IMPORTANT: Always unload the unit before setting the hoist safety prop.

Tailgate Safety Pins

The tailgate pins are located on both sides of the rear of the body. The tailgate pins prevent the tailgate from opening accidentally. The pins **MUST ALWAYS BE IN LOCK POSITION WHEN THE VEHICLE IS IN MOTION. PLACE THEM IN STORED POSITION WHEN UNLOADING REFUSE.** Refer to “Utilizing Tailgate Pins” on page 21.

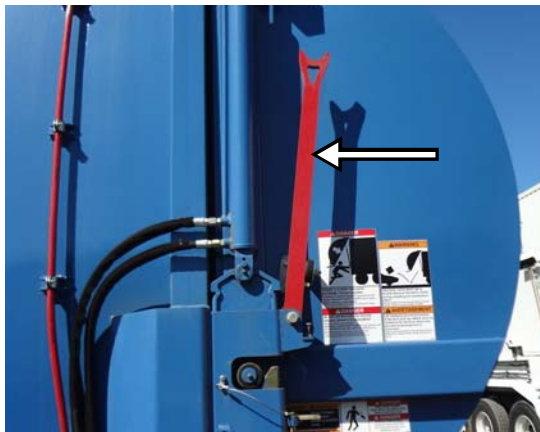
Figure 2-12 Tailgate safety pin in stored position



Tailgate Safety Props

The tailgate safety prop is a standard safety feature on the ALLEY-GATOR RIGHT-HAND™ (see Figure 2-13). It is fixed to the left-hand side tailgate latch assembly. The tailgate safety prop fits into a bracket on the body and prevents the tailgate from closing when you are working beneath/around an open tailgate. Refer to “Positioning the Tailgate Safety Prop” on page 22.

Figure 2-13 Tailgate safety prop



Safety Lockout Tests

Your daily inspection includes completing the safety lockout tests. Successful completion of these tests ensure that your vehicle is safe to operate.

If any of these tests fail, do not operate your vehicle until the appropriate adjustment or service has been completed.

NOTE: Your ALLEY-GATOR RIGHT-HAND™ Side Loader may be equipped with other safety lockout options not mentioned here. Consult your supervisor and/or maintenance department if you have any questions or concerns.

Access Ladder Proximity Switch (if equipped)

NOTE: The following test is for units that are equipped with an access ladder.

Performing this test ensures the ASL¹ access ladder proximity switch is working. *If the access ladder is deployed, all hydraulic functions should stop. It is imperative that you do not operate your ALLEY-GATOR RIGHT-HAND™ with an inoperative or malfunctioning access ladder proximity switch.*

IMPORTANT: Remember extreme danger exists when working in or around the hopper!

To perform this test:

1. DEPLOY the access ladder.
2. ENSURE the danger lamp on the control console illuminates (see Figure 1-2), the access ladder warning message appears on the IQAN MDM screen (see Figure 2-15), and the buzzer sounds.
3. ATTEMPT to OPEN the tailgate.

All hydraulic functions should be DISABLED.

1. Automated Side Loader

4. IF ANY hydraulic function is OPERATIONAL when the ladder is deployed, NOTIFY your maintenance supervisor immediately.

Location: This proximity switch is located at the base of the access ladder.

Figure 2-14 Access ladder proximity switch



Figure 2-15 IQAN MDM display screen



Arm Limit Switches (2)

Performing this test ensures the *Arm not parked* message will appear on the IQAN MDM screen (see Figure 2-15) when the slide is extended from the home position. ***Failure to heed this warning message may result in serious personal injury or material damage from a lift which is extended during travel.*** This warning also prevents dumping of refuse outside the hopper.

To perform this test:

1. PARK the vehicle in a non-traffic area.

You should have sufficient room to drive approximately 100 yards (91.44 m) forward.

2. EXTEND the slide.
3. CHECK that the caution lamp on the control console illuminates (see Figure 1-3) and the *Arm not parked* message appears on the MDM screen (see Figure 2-15).
4. DRIVE the vehicle forward and increase engine speed to over 1,000 rpm.
5. STOP the vehicle and return the slide to the 'HOME' position (see Figure 2-17). The *Arm not parked* message on the MDM screen should disappear and the caution lamp should turn off.
6. IF the *Arm not parked* message DOES NOT appear on the MDM screen or the caution lamp DOES NOT illuminate when the lift is EXTENDED and the vehicle engine exceeds 1,000 rpm, NOTIFY your maintenance supervisor immediately.

IMPORTANT: *Do not operate the ALLEY-GATOR RIGHT-HAND™ with inoperative or malfunctioning arm limit switches. Injury or death may occur.*

Location: These limit switches are fixed to the arm support behind the grabber.

Figure 2-16 Arm limit switches



Figure 2-17 Slide retracted and in "HOME" position



Hopper Cover Proximity Switch (if equipped)

NOTE: The following test is for units that are equipped with a hopper cover.

Performing this test ensures that you cannot accidentally dump refuse on top of the hopper cover.

To perform this test:

1. CLOSE the hopper cover.
2. ATTEMPT a dump cycle with an EMPTY can.
3. If the dump cycle completes, notify your maintenance supervisor immediately.

NOTE: The lift should still function to approximately 2/3 of the full lift height.

Body Raised Proximity Switch

Performing this test ensures you know when the body is properly seated on the chassis. The body should always be seated unless unloading or servicing is being performed.

IMPORTANT: *Never drive the unit while the body is raised unless unloading.*

To perform this test:

1. LOWER the body using the in-cab console *body UP/DOWN switch*.
2. EXIT the cab and visually CONFIRM that the body is firmly seated on the chassis.
3. REMOVE both tailgate safety pins, and open the tailgate.

A buzzer will sound and a danger lamp on the control console will illuminate (see Figure 1-2).

NOTE: When using in-cab controls, the body will not rise unless the tailgate is OPEN. When using manual valve controls, the body can be raised without raising the tailgate. As soon as the body reaches a certain height, a buzzer will sound and a danger lamp on the control console will illuminate (see Figure 1-2).

4. RAISE the body using the in-cab console *body UP/DOWN switch*. A *body raised* message should appear on the MDM screen.
5. IF the danger lamp DOES NOT illuminate or the *body raised* message DOES NOT appear on the screen, NOTIFY your maintenance supervisor immediately.

Location: *This switch is mounted on the curb side of the chassis frame (see Figure 2-18).*

Figure 2-18 BODY RAISED proximity switch

Lockout Reference Chart

Extension ladder deployed - if equipped	All hydraulic functions inoperative
Vehicle engine over 1000 rpm	Slide out, gripper CLOSE and lift up inoperative
Arm slide not extended beyond hopper	Dump inoperative
Lift raised above vertical	Gripper OPEN inoperative
Hopper cover closed (or not fully open) - if equipped	Lift up function will not operate above vertical
Slide in	Body up function inoperative
Body raised	Slide in function inoperative
Tailgate closed & arm not extended	Body will not raise

Lockout/Tagout Procedure

Performing the lockout/tagout procedure should be followed whenever you are inspecting, cleaning or repairing the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader.

IMPORTANT: *Failure to follow the lockout/tagout procedure may result in serious injury or death.*

Prior to performing under body work, it is necessary to set the hoist safety prop. Refer to “Hoist Safety Prop” on page 14.

To lock out and tag out your ALLEY-GATOR RIGHT-HAND™ unit:

1. SET chassis park brake.
2. TURN OFF engine, REMOVE keys from ignition and STORE keys in a safe controlled area.

It is recommended that you keep the keys on your person.

3. MOVE any one of the hydraulic controls to RELIEVE any residual pressure in the system.
4. PLACE an Out-of-Service tag on the steering wheel using a non-reusable fastener and place an Out-of-Service sign in the front window.
5. TURN OFF and LOCK the battery switch.
6. CHOCK the wheels.

Figure 2-19 Lockout tags



Figure 2-20 Shut off engine, remove keys from ignition and store them in a safe controlled area



Utilizing Tailgate Pins

The tailgate pins (see Figure 2-21) must be in lock position unless you are:

- ♦ unloading refuse
- ♦ servicing the tailgate

The tailgate pins ensure that the tailgate cannot be opened accidentally.

IMPORTANT: Before operating the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader, place both tailgate pins in lock position.

IMPORTANT: Before opening the tailgate, disengage both tailgate pins from their lock position and place them in their stored position.

Figure 2-21 Tailgate pin



Positioning the Tailgate Safety Prop

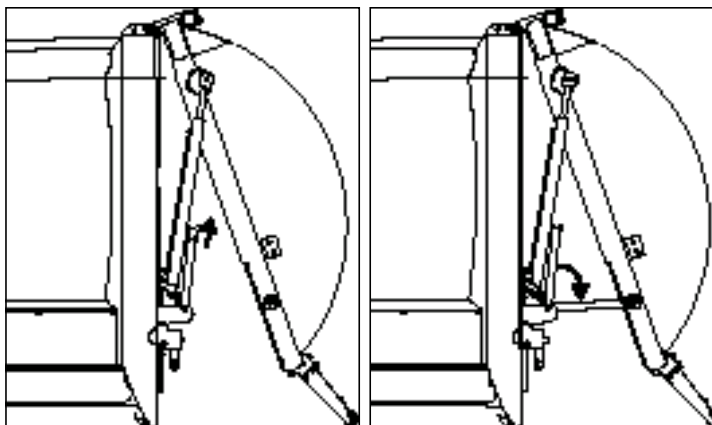
A tailgate safety prop has been installed on your ALLEY-GATOR RIGHT-HAND™ Automated Side Loader (see Figure 2-23). It is located on the street side of the tailgate. This prop is there for your protection. When latched, it ensures that the tailgate will not close while you are working beneath or around the tailgate.

IMPORTANT: *Never walk or work under the tailgate without first positioning the tailgate prop.*

To position the tailgate prop, do the following:

1. ENSURE there is adequate room behind the truck to open the tailgate.
2. REMOVE both tailgate pins from their lock position (see Figure 2-21).
3. OPEN the tailgate by approximately 3 feet (enough to raise the safety prop).
4. PULL the safety prop upward and SET it down.

Figure 2-22 Pulling safety prop upward (left) and setting it down (right)



5. LOWER the tailgate onto the safety prop.
 6. COMPLETE the Lockout/Tagout Procedure.
- Refer to “Lockout/Tagout Procedure” on page 20.

Figure 2-23 Tailgate safety prop



Figure 2-24 Danger decal

IMPORTANT: Never walk or work under the tailgate when it is open unless the tailgate safety prop is in place.

Stabilizing a Hoisted Body

The ALLEY-GATOR RIGHT-HAND™ Automated Side Loader is equipped with a hoist safety prop (see Figure 2-26). This safety prop is designed to stabilize the lifted body, thus allowing you to safely work beneath the body.

IMPORTANT: The hoist safety prop must be engaged if access under a lifted body is required. Do not use the hoist safety prop to prop a loaded body.

To stabilize a hoisted body:

1. ENSURE that the truck is on solid, level ground and the body is empty.
2. SET the chassis park brake.
3. CHECK for overhead clearance and CHOCK the front and rear tires.
4. UNLATCH the spring storage latch.

Figure 2-25 Spring storage latch



5. RAISE the body until the safety prop hangs free.

IMPORTANT: *Do not raise the body higher than is required for the prop. If the unlatched prop does not swing into place with the body raised, the prop has been damaged and must be repaired prior to use.*

6. LOWER the body until the safety prop feet fit into the prop retainer cut-outs and seat securely onto the chassis frame.
7. COMPLETE the Lockout/Tagout Procedure. Refer to “Lockout/Tagout Procedure” on page 20.

Figure 2-26 Hoist safety prop in engaged position



Figure 2-27 Warning decal

Raising the Front-End Body

It may be required to raise the front-end body to complete repairs. For this, you will require two suitable chains, one shackle, two grab hooks and a lifting device such as an overhead crane.

Caution!

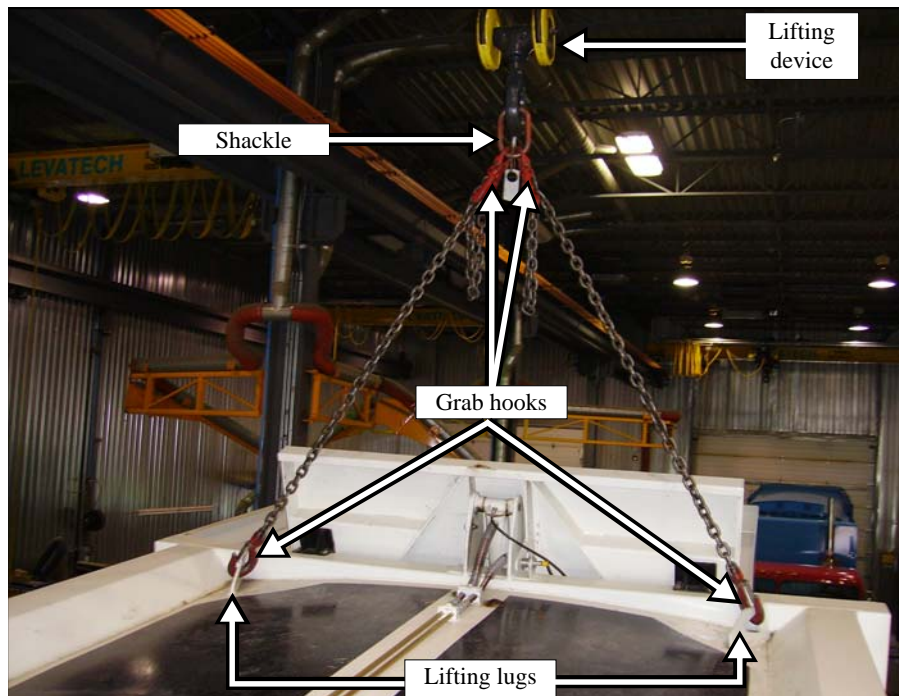


Do not lift the front-end body if the hinges at the rear end of the body are not securely fixed to the frame rails.

Use grade 80 lift chains with a working load limit of 7,100 lbs (3.23 tonnes).

NOTE: The shackle used must have a working load limit of 4.75 tons (4.83 tonnes).

Figure 2-28 Example of a lifting installation



3

Maintenance

Cautionary Notes for Maintenance Personnel

Keeping your safety in mind, please note that it is imperative that **ONLY QUALIFIED PERSONNEL** (who are knowledgeable with the operations of the vehicle) perform service to the hydraulic, electrical and pneumatic systems.

Please read carefully the **SAFETY INFORMATION** (chapter 2, in this manual), **VEHICLE CONTROLS** (chapter 3, in the Operator's Manual), and **VEHICLE OPERATION** (chapter 4, in the Operator's Manual), prior to attempting any maintenance to your Alley-Gator Right-Hand™ Side Loader.

For Welding Purposes

For welding purposes, please note that the ASL¹ body is primarily composed of two types of steel, ASTM A715 (grade 80) and Hardox 450 (hardened steel). It is recommended that you use either low hydrogen electrodes E11018 or Spool Arc 83 mig wire.

NOTE: Prior to welding on packer body, **DISCONNECT ALL BATTERIES and ELECTRONIC MODULES.**

NOTE: **REMOVE PAINT** before welding or heating.

NOTE: Do not weld near **PRESSURIZED LINES** or **LINES CONTAINING FLAMMABLE FLUID.**

Caution!



DISCONNECT all batteries and electronic control modules **PRIOR** to welding on body. Failure to observe this procedure may lead to severe damage to electronic components.

1. Automated Side Loader

Hydraulic Oil

The most crucial element to the hydraulic system is the hydraulic oil. It provides the system with vitality. The oil transports damaging contaminants to filtering systems, lubricates and provides anti-wear protection against component corrosion.

Regular oil changes are vital to the lifespan of hydraulic system components. Overtime, particles in the oil will deteriorate the hydraulic system, observation of the oil color change signifies oxidization and the need to be replaced. At that time, the oil will appear cloudy or milky. Keep in mind operational performance, load and environmental conditions are variables that determine the frequency of hydraulic oil renewal.

Following stringent maintenance schedules and performing routine oil analysis are effective methods of obtaining information to determine the cleanliness of the hydraulic oil. **Labrie Enviroquip Group recommends that the hydraulic oil be replaced or filtered every 1000 hours and following any major hydraulic failures. Failure to maintain hydraulic cleanliness to recommended guidelines may result in failure of hydraulic components and void your warranty.**

Oil Identification

The Alley-Gator Right-Hand™ has an oil identification tag that specifies the manufacturer's brand of hydraulic oil that your vehicle has been filled at the Labrie factory. When oil replacement becomes necessary other equivalent oil by other manufacturers may also meet your application requirements.

The oil identification tag is located on the hydraulic tank. Replacement decals may be ordered from the Labrie Parts Department.

Figure 3-1 Oil Identification Tag



Oil Recommendations

Labrie Enviroquip Group recommends that you refer to the guidelines on the next page and that you consult the oil manufacturer to ensure that your oil needs are fulfilled.

Please consider cold weather operation requires special oil consideration. *Viscosity should not exceed 7500 SUS / 1620 cSt at lowest start-up temperature.* Continuous operation should range between 60 - 1000 SUS (10.5 - 216 cSt) for all temperature ranges.

Viscosity	@	40°C	= 32.3 cSt
	@	100°C	= 6.3 cSt
	@	100°F	= 165 SUS
	@	210°F	= 47.3 SUS

Viscosity Index	148
Flash Point	439°F / 226°C
Pour Point	-48°F / -54°C
Rust Test - proc A & B, 24 hrs	PASS

Common Hydraulic Components

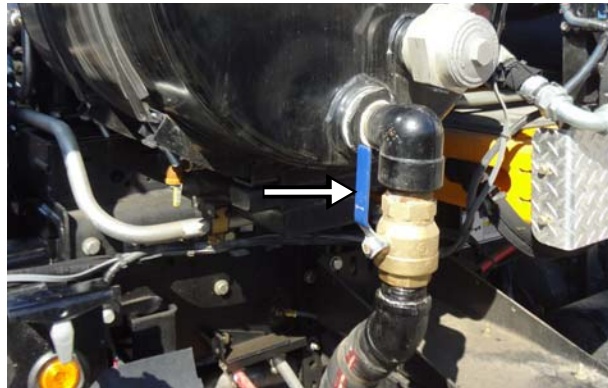
Hydraulic Oil Tank

The Alley-Gator Right-Hand™ has an aluminum or steel hydraulic oil tank with a 55 gallon (208 litre) capacity (see Figure 3-2).

A ball valve is located within the suction line of the hydraulic oil tank for maintenance purposes (see Figure 3-3). It is imperative that the ball valve be open while operating the hydraulic pump. Severe damage to the hydraulic pump will occur if it is operated with the valve closed.

Figure 3-2 Hydraulic tank



Figure 3-3 Ball valve

Hydraulic Oil Cooler

Your Alley-Gator Right-Hand™ has been fitted with an aluminum thermostat-controlled oil cooler. The cooler is fitted in the hydraulic return line from the packer valve to the oil tank. When the operating oil temperatures exceed 150 F (65.6 C), the cooler fan starts rotating to help cool down the oil temperature to below 150 F (65.6 C).

Figure 3-4 Hydraulic oil cooler

Oil Filtration

Your hydraulic system requires filtration for performance and longevity. Excessive particle contaminants over a period of time will result in poor hydraulic performance and/or failure. The hydraulic system on your Alley-Gator Right-Hand™ is protected with **one return line filter** and **one in-line pressure filter**. *These filters must be changed after the first 50 hours of use. Replacement guidelines are provided below.*

Filter Replacement

Labrie Enviroquip Group recommends the filter elements be replaced as per pop up indicator (on the filter) or every 2500 hours of regular operational use. Examination of routine contamination is also recommended. Regular filter replacement done by qualified maintenance personnel helps to remove

trapped contaminants that are conducive to your system. Consideration needs to be given to the operating conditions and duty when further determining the replacement interval. ***Replacement procedures for both types of filters are detailed on the following pages.***

NOTE: The element must also be changed following a major hydraulic component failure.

Please consider the following recommendations by Labrie Enviroquip Group when replacing your filters.

In-Line Pressure Filter (2) 5 micron

Return Line Filter (in tank) 10 micron

Hydraulic Return Line Filter

A *10 micron return line filter* element is located inside the hydraulic tank. All oil returning to the hydraulic tank is passed through this filter. The filter is fitted with a filter restriction indicator that signals time of replacement. Please see above for the recommended replacement filter. Filters may be ordered directly from Labrie Enviroquip Group by calling our Parts Department.

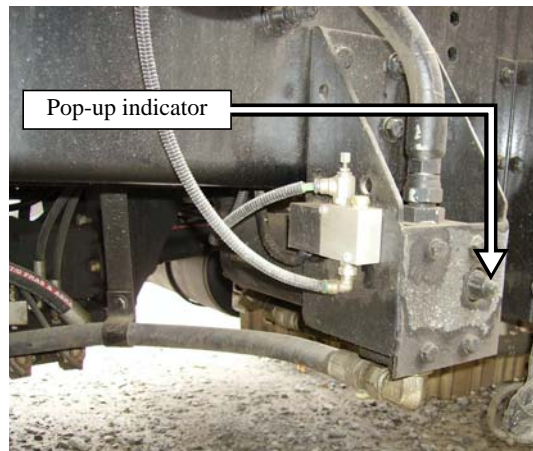
NOTE: Change the filter before the arrow of the filter restriction indicator reaches the red zone. This will keep the oil clean, extend component life and reduce failures.

Figure 3-5 Filter restriction indicator



In-Line Pressure Filter

This *5 micron in-line pressure filter* is located under the chassis, behind the lift (see Figure 3-6). Hydraulic oil is passed through this filter. This filter is also fitted with a pop-up indicator that signals time of replacement. Please see above for the recommended replacement filter. Filters may be ordered directly from Labrie Enviroquip Group by calling our Parts Department.

Figure 3-6 In-line pressure filter

Return Line Filter Element

NOTE: While every effort is made at the Labrie factory to ensure clean hydraulic systems, it should be noted that most hydraulic system manufacturers recommend the filter be replaced after a break-in period. Labrie's recommendation is to replace this filter element after a break-in period of 50 hours of operational use.

Return Line Filter Element Replacement Procedure

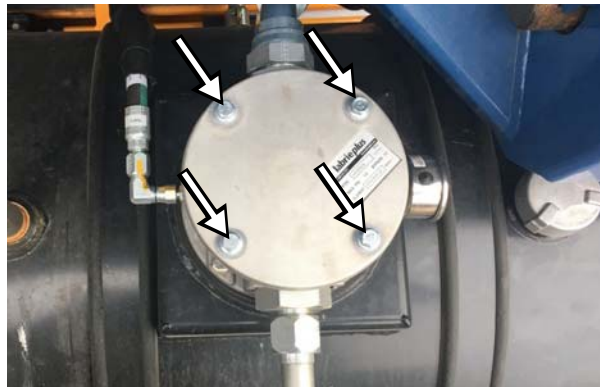
The following is the procedure to replace the return line filter element:

1. SWITCH OFF the hydraulic system. Refer to "Lockout/Tagout Procedure" on page 20.
Keep tools, working area and equipment clean. A pan will be required to collect a small amount of oil lost as the element is removed.
2. SLOWLY remove the hydraulic tank cap (see Figure 3-7).
SLOW turning will RELEASE system pressure.
3. REMOVE the filter head cover bolts (four) [see Figure 3-8].
4. REMOVE the element by the handle.
ROTATING during removal will help release suction.
5. INSPECT o-rings and housing for damage. REPLACE as necessary.
6. MOISTEN the filter housing and head cover sealing surfaces with oil.
7. PLACE the new filter element into housing.
8. REPLACE the filter head cover and PUT all 4 bolts back in.
9. PUT BACK the tank cap into place.
10. OPERATE the hydraulic system and CHECK for leaks.

Figure 3-7 Hydraulic tank cap



Figure 3-8 Filter head cover and retaining bolts



In-Line Pressure Filter

NOTE: Hydraulic system manufacturers recommend the first filter replacement be made after a break-in period. Labrie's recommendation is to replace the filter elements after a break-in period of 50 hours of operational use.

In-Line Pressure Filter Replacement Procedure

Follow this procedure to replace in-line pressure filters (see Figure 3-6):

1. SWITCH OFF the hydraulic system. Complete the Lockout/Tagout Procedure as instructed on page 20.
2. REMOVE the filter housing from the chassis and REMOVE the filter from the housing.
3. CLEAN and INSPECT housing for damage, REPLACE if necessary.
4. INSPECT o-rings for damage and replace if necessary.
5. PLACE the new filter element into housing.
6. MOISTEN the filter housing and filter mount sealing surfaces with oil.

7. INSTALL filter housing onto chassis.
8. OPERATE the hydraulic system and CHECK for leaks.

Lubricating

Automatic Greasing System

Your Alley-Gator Right-Hand™ Side Loader may have a factory installed optional Automatic Greasing System. The system automatically supplies grease to numerous points on the Alley-Gator's chassis and body. The number of points will vary as per your customized order.

To ensure proper operation of the system, never let the grease fall below the minimum level as indicated on the grease reservoir. Labrie recommends that the grease reservoir be filled with OEM-recommended grease. You may order this product and system parts from Labrie by contacting our Parts Department toll free at 1 (800) 231-2771 in the U.S. or 1 (877) 831-8250 in Canada.

Please consult the OEM product information that has been supplied with your Alley-Gator Right-Hand™ for further information and maintenance material. The provided data includes preventive maintenance, system testing and a troubleshooting chart. Further inquiries regarding your automatic greasing may be directed by contacting our Service Department at 1 (800) 231-2771 in the U.S. or 1 (877) 831-8250 in Canada.

Vehicle Lubrication

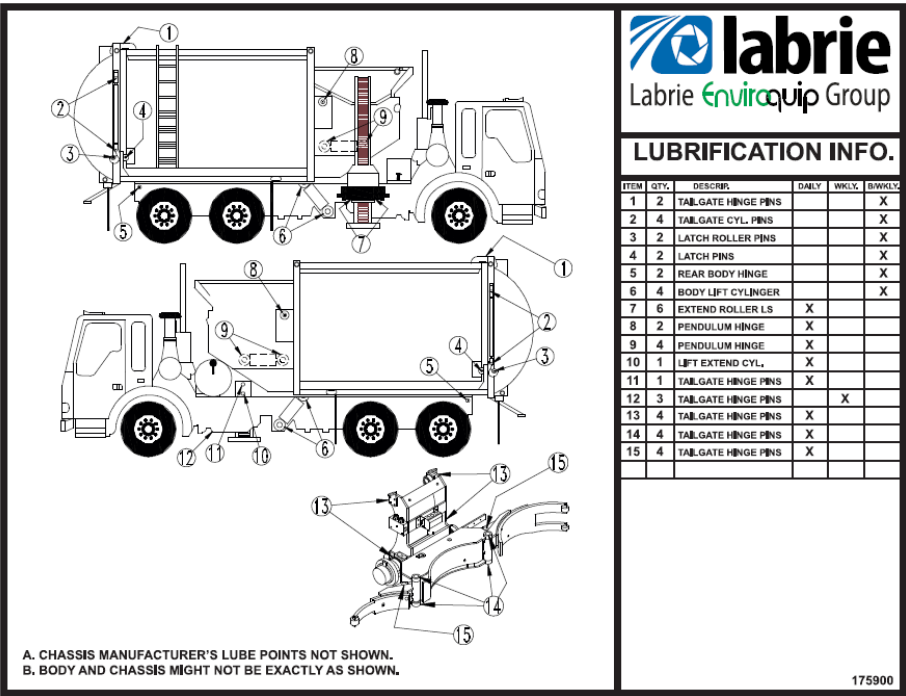
Any lithium-based commercial multipurpose grease may be used.

Lube Points

NOTE: Routine lubricating reduces component failures!

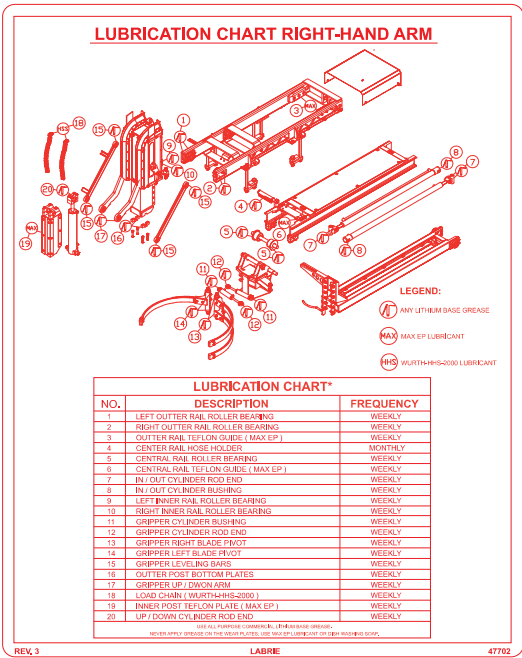
Your new Alley-Gator Right-Hand™ Side Loader has numerous points that require routine lubricating. Although complete lubrication has been performed at the Labrie factory, it is strongly recommended that the Alley-Gator Right-Hand™ be fully lubricated prior to operating. Figure 3-9 and Figure 3-10 depict the location of the lubrication points. Please refer to "Recommended Maintenance Schedule" on page 38 for itemized lube points and recommended frequency.

Figure 3-9 Lube points on body



NOTE: Figure 3-9 represents the Alley-Gator™ with the standard arm. For lube points on the optional Right-Hand arm, see Figure 3-10

Figure 3-10 Lube points on optional Right-Hand arm



Recommended Maintenance Schedule

Table 1 **Lubrication**

Description	Schedule (Performer)
Tailgate hinge pins (2)	Biweekly (optional)
Tailgate cylinder pins (4)	Biweekly (optional)
Latch pins (2)	Biweekly (optional)
Rear body hinge pins (2)	Biweekly (optional)
Inspect hydraulic oil level in tank	Daily (optional)
Manual greasing system manifold, pack blade (6)	Daily (optional)
Inspect grease in auto greasing system reservoir	Weekly (optional)
Grease all arm grease zerks (8)	Daily (optional)
Inspect unit for leaks	Daily (optional)
Grease pump drive line (3)	Weekly (optional)

NOTE: Some lube points may be greased by an automatic grease system. Consult manufacturer's manual for information.

Table 2 **Cleaning**

Description	Schedule (Performer)
Safety decals	Pre-trip (operator)
Mirrors, lights, windows, camera	Pre-trip (operator)
<i>Clear</i> debris at tailgate seal	At landfill (operator)
<i>Clear</i> contact surfaces of body and chassis	At landfill (operator)

Table 2 **Cleaning (cont'd)**

Description	Schedule (Performer)
Clear debris on lift (if any)	At landfill (operator)
Wash complete body and chassis (more often if required)	Weekly (operator)
Other	As specified by FMCSR and/or owner

Table 3 **Mechanical inspection (performed when truck is at rest or stopped)**

Description	Schedule (Performer)
IMPORTANT: Inspect for distortion, cracks and/or unusual wear. Ensure mounting and pin retainer bolts are intact and tight.	
Body seated flat on chassis	Pre-trip (operator), monthly (maintenance)
Body hinge ears (2), pins (2), and retaining hardware	Pre-trip (operator), monthly (maintenance)
Body raise cylinder ears (2) & retaining hardware	Pre-trip (operator), monthly (maintenance)
Body raise cylinder mounting bolts on chassis (quantity varies)	Pre-trip (operator), monthly (maintenance)
Hoist safety prop and prop retainers [inspect prior to using]	Operator (weekly)
Lift assembly	Pre-trip (operator), monthly (maintenance)
Lift assembly mounting bolts, lockwashers and nuts	Pre-trip (operator), monthly (maintenance)
Lift bearings	Pre-trip (operator), monthly (maintenance)
Lift cylinder ears, pins & retaining hardware	Pre-trip (operator)
Pendulum assembly	Monthly (maintenance)
Pack pendulum cylinder pins (4) & retaining nuts/bolts	Daily (operator), monthly (maintenance)
Interior of hopper and main body walls, floor and roof	Pre-trip (operator), monthly (maintenance)

Table 3 Mechanical inspection (performed when truck is at rest or stopped) - cont'd

Description	Schedule (Performer)
Exterior of hopper and main body walls, floor & roof	Pre-trip (operator), monthly (maintenance)
Hopper cover assembly (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Hopper cover cylinder pins, ears, and retaining hardware (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Hopper cover cylinder clamp & related nuts/bolts (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Tailgate assembly	Pre-trip (operator), monthly (maintenance)
Tailgate cylinder ears (4), pins (4) & retaining hardware	Pre-trip (operator), monthly (maintenance)
Tailgate latch assembly (2) and pivots (2)	Pre-trip (operator), monthly (maintenance)
Tailgate seal & seal retainer	At landfill (operator)
Tailgate hinge ears (2), pins (2) & retaining hardware	Pre-trip (operator), monthly (maintenance)
Tailgate safety props	Pre-trip (operator), monthly (maintenance)
Safety equipment present (e.g. fire extinguisher, first aid kit)	Pre-trip (operator)
Other	As specified by FMCSR and/or owner

Table 4 Operation (main controls)

Description	Schedule (Performer)
IMPORTANT: Observe that travel is smooth and even, speed is normal, and controls are responsive	
Lift up/down (check cushions & warning light function)	Daily (operator)
Slide extend/retract (check cushions & warning light function)	Daily (operator)

Table 4 **Operation (main controls) - cont'd**

Description	Schedule (Performer)
Pendulum pack/return/autopack/autostop (check stall warning light function)	Monthly (maintenance)
Hopper cover open/close (optional, if equipped)	Daily (operator)
Tailgate open/close	Daily (operator)
Body raised up/down	Daily (operator)
<u>IMPORTANT:</u> Perform safety lockout tests to check limit and proximity switches	
Access ladder test (access ladder proximity switch) [optional, if equipped]	Daily (operator)
Tailgate test (tailgate limit switch, check for warning light & buzzer)	Daily (operator)
Lift up lockout/hopper cover test (hopper cover limit switch - optional, if equipped)	Daily (operator)
Lift up lockout (lift up function locked out if body is raised)	Daily (operator)
Other	As specified by FMCSR and/or owner

Table 5 **Operation (misc. controls and features)**

Description	Schedule (Performer)
<u>IMPORTANT:</u> Check control console warning devices are functioning	
Pump button light	Daily (operator)
Hopper cover warning light (optional)	Daily (operator)
Tailgate open warning light/external alarm (tailgate open limit switch)	Daily (operator)
Lift elevated warning light & optional buzzer (activates if vehicle exceeds 1000 rpm)	Daily (operator)
Body raised warning light/buzzer	Daily (operator)

Table 5 **Operation (misc. controls and features) - cont'd**

Description	Schedule (Performer)
IMPORTANT: Check external lights and miscellaneous are functioning	
Stop, signal and tail lights	Pre-trip (operator), daily (optional)
Marker lights	Pre-trip (operator), daily (optional)
Hopper light	Pre-trip (operator), daily (optional)
Lift light	Pre-trip (operator), daily (optional)
Backup lights	Pre-trip (operator), daily (optional)
Backup flood lights	Pre-trip (operator), daily (optional)
Strobe lights (if equipped)	Pre-trip (operator), daily (optional)
Camera lights (if equipped)	Pre-trip (operator), daily (optional)
Alternating flashers (if equipped)	Pre-trip (operator), daily (optional)
Backup alarm	Pre-trip (operator), daily (optional)
Perimeter/proximity motion sensors (if equipped)	Pre-trip (operator)
IMPORTANT: Check miscellaneous control console devices are functioning	
Other	As specified by FMCSR and/or owner

Table 6 **Hydraulic systems**

Description	Schedule (Performer)
Check for leaks, damage, etc. on hydraulic oil tank	Pre-trip (operator), monthly (maintenance)
Confirm that hydraulic oil tank is securely mounted to chassis frame	Pre-trip (operator), monthly (maintenance)
Check oil level in hydraulic oil tank (all cylinders retracted)	Pre-trip (operator), monthly (maintenance)
Check oil condition (not burnt/dirty)	Monthly (maintenance)
Replace oil	As required
Confirm that suction ball valve is fully open	Pre-trip (operator), monthly (maintenance)

Table 6 **Hydraulic systems (cont'd)**

Description	Schedule (Performer)
Clean the breather cap (replace if necessary) [more often if required]	Monthly (maintenance)
IMPORTANT: To protect the hydraulic components of your new equipment, the return line filter and in-line pressure filter must be changed after the first 50 hours of use. Thereupon, the filters should be changed once every 2500 hours or as per “pop-up” service indicator or following a major hydraulic component failure.	
Change hydraulic return line oil filter	As per indicator
In-line pressure filter (1)	As per indicator
Clean magnetic plug	At each oil change
Inspect pumps for leaks	Pre-trip (operator), monthly (maintenance)
Ensure pumps are securely mounted	Pre-trip (operator), monthly (maintenance)
Ensure driveline is security mounted	Monthly (maintenance)
Inspect valve banks for leaks	Pre-trip (operator), monthly (maintenance)
Ensure valve banks are security mounted	Pre-trip (operator), monthly (maintenance)
Check system pressure relief valve settings. Adjust if required	Annually or every 2500 hours (whichever is more frequent) [use pressure gauge; record]
Inspect all hydraulic lines for leaks, chafing	Pre-trip (operator), monthly (maintenance)
Inspect all hydraulic cylinders and misc. hydraulic components for leaks	Pre-trip (operator)
Other	As specified by FMCSR and/or owner

Table 7 **Chassis pneumatic system**

Description	Schedule (Performer)
Drain air tanks [at the end of each day]	Daily (optional)
Inspect air lines for leaks	Daily (operator)
Other	As specified by FMCSR and/or owner

More Notes on Lubrication

The oil identification tag located on the hydraulic oil tank specifies the manufacturer's brand of oil that was filled at the Labrie factory. Equivalent oil by other manufacturers may also meet your application requirements. Labrie Enviroquip Group recommends that you refer to the guidelines on page 31 and consult the oil manufacturer to ensure that your needs are fulfilled.

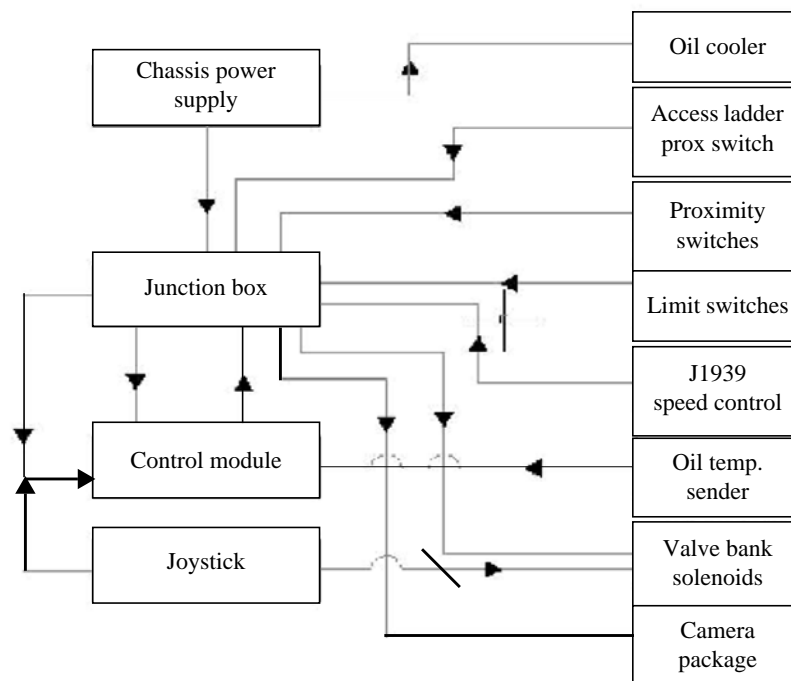
NOTE: Cold weather operation requires special oil considerations. Viscosity should not exceed 7500 SUS (1620 cSt) at lowest startup temperature. Continuous operation should range between 60-1000 SUS (10.5-216 cSt) for all temperature ranges.

Electrical System

The electrical system is made up of numerous components connected by generic harnesses. Proximity and limit switches provide safety lockouts and influence the operational controls located in the control panel. The lift is operated via an electronic joystick. Body controls, such as the tailgate, are operated via switches located on the in-cab control panel.

The following simplified block diagram of the electrical system may assist you in understanding the electrical system of the Alley-Gator Right-Hand™.

Figure 3-11 Diagram of the electrical system



Electrical System Components

Auto-Reset Circuit Breakers

Power for the Alley-Gator Right-Hand™ ASL electrical system is protected by various replaceable automotive type fuses located in the inside junction box. The circuit breakers are mounted on the side of the relay box (see Figure 3-12).

Figure 3-12 Auto-reset circuit breakers



Electrical Junction Box

The Alley-Gator Right-Hand™ junction box is mounted to the underside of the front end of the body. The junction box joins all electrical wiring from the relay box and all electrical wiring from the body of the Alley-Gator Right-Hand™.

Figure 3-13 Electrical junction box



Relay Box

The relay box is located in the cab of the vehicle (see Figure 3-14). The box interior consists of a series of relays, fuses, and connectors that supply the electrical systems for the Alley-Gator Right-Hand™.

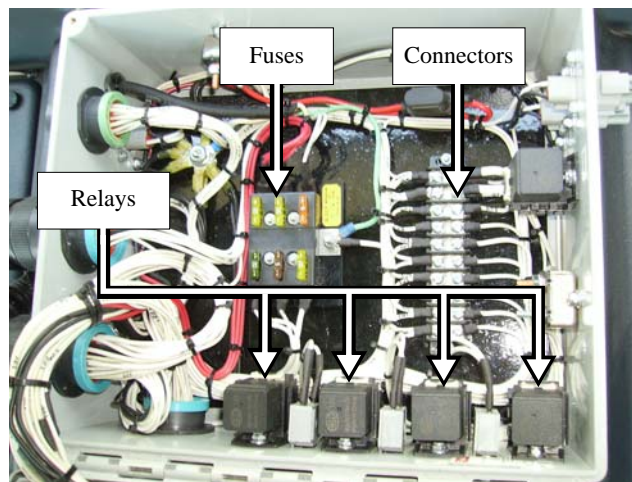
Relays: A relay is a series of switches influenced by a common coil but controlled from a remote location, such as a limit switch or proximity switch. Although there are 2 different types of relays they perform the same function. Each relay is labelled in accordance with the operation it controls.

Fuses: There are six fuses installed in the relay box; only three are resettable. All fuses are located at the center of the relay box. The three resettable fuses protect all lights circuits. All fuses are labelled as to the circuit they protect.

Figure 3-14 Relay box



Figure 3-15 Inside relay box



Proximity/Limit Switches

Eight standard proximity/limit switches are located on the arm and body of the ASL (9 if a ladder or a crusher panel is installed, 10 if a top door is installed). They provide safety lockouts as well as controlling the operational cycle of the pendulum and arm. See *Proximity and Limit Switches* on page 49 for more information.

Figure 3-16 Ladder proximity switch (optional)

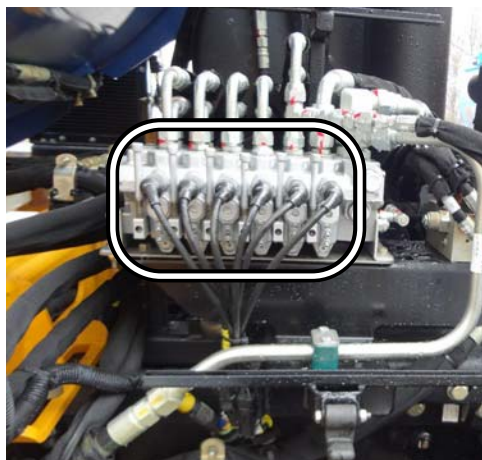


Valve Solenoids

Solenoid valves are devices that use a solenoid to control valve activation. The solenoids are mounted to the directional valves and transmit operator commands to activate the mechanical spools.

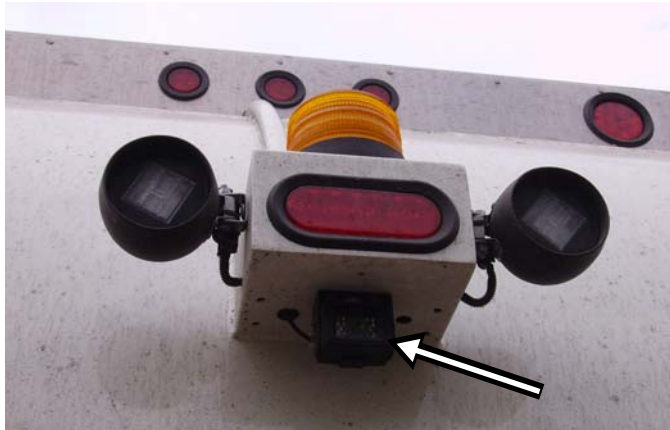
A solenoid is composed of a wire coil and a movable plunger that rests against the coil. An actuating magnetic field is created when current is applied to the coil. The solenoid is used as a switch or control for the valves. Solenoid valves are electro-mechanical devices that use a solenoid to control valve actuation. Electrical current is supplied to the solenoid coil, and the resulting magnetic field acts upon the plunger, whose resulting motion actuates the valve.

Figure 3-17 Valve solenoids



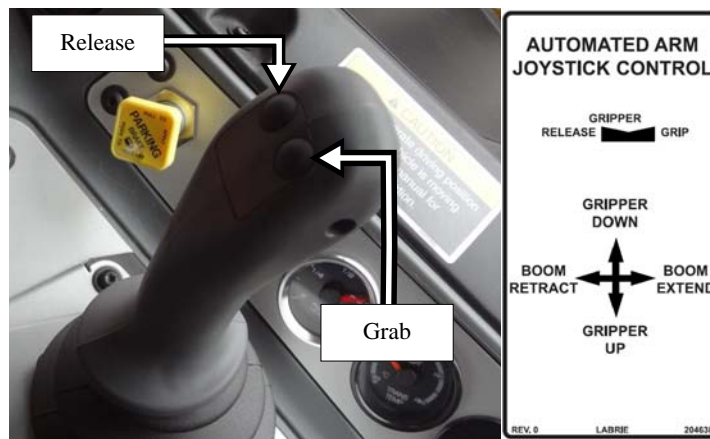
External Lights and Vision Equipment

Basic lighting requirements in accordance with FMVSS are fitted as standard equipment to your Alley-Gator Right-Hand™ ASL. However there are many additional options available that may be added to your vehicle. Consult with the OEM/Labrie Enviroquip Group for more information.

Figure 3-18 Rear view camera

Joystick

The electronic joystick is used to control all slide, arm and grabber functions. The slide and arm functions are variable for speed and control. The grab and release thumbswitches are on-off only switches located on the top of the control lever.

Figure 3-19 Joystick

Harnesses

Harnesses connect all electrical components on your Alley-Gator Right-Hand™ Automated Side Loader. The harnesses are generic and may contain wires and plugs that are not utilized.

Proximity and Limit Switches

Proximity and limit switches act as remote electrical on/off switches and must be adjusted properly.

Figure 3-20 and Figure 3-21 show the location of the proximity/limit switches that are usually installed on the Alley-Gator Right-Hand™. The number of switches may vary, depending on the vehicle's equipment.

Figure 3-20 Location of the proximity/limit switches (curbside)

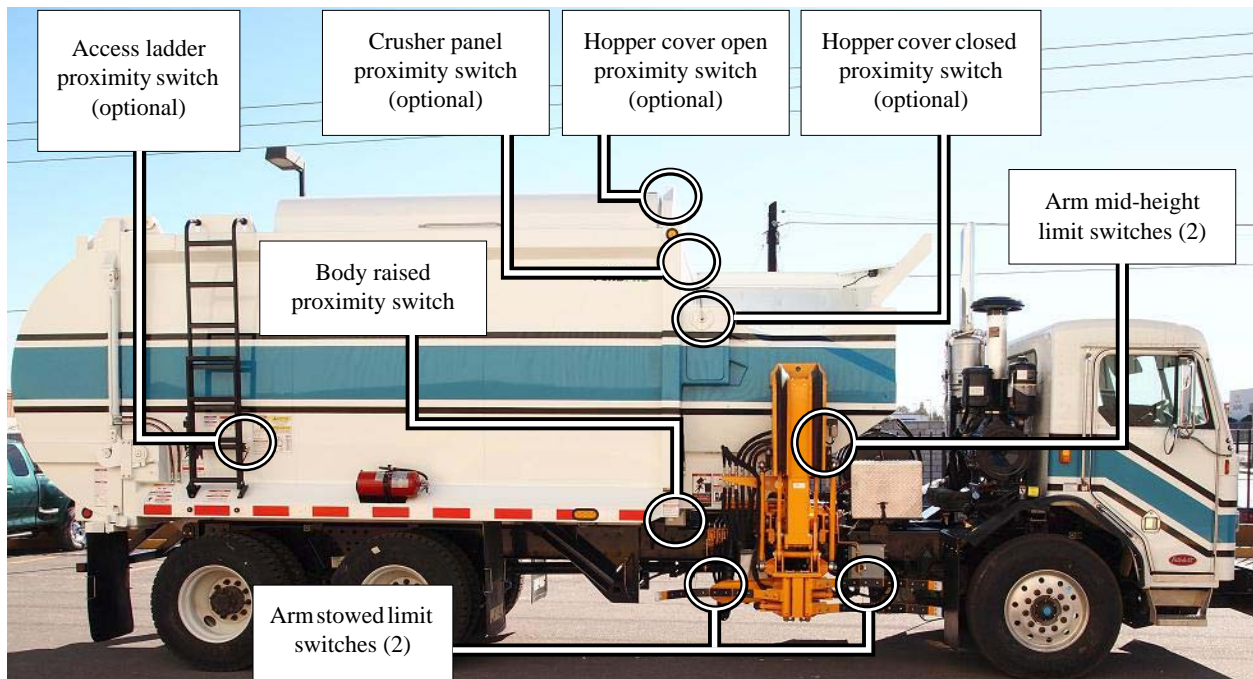
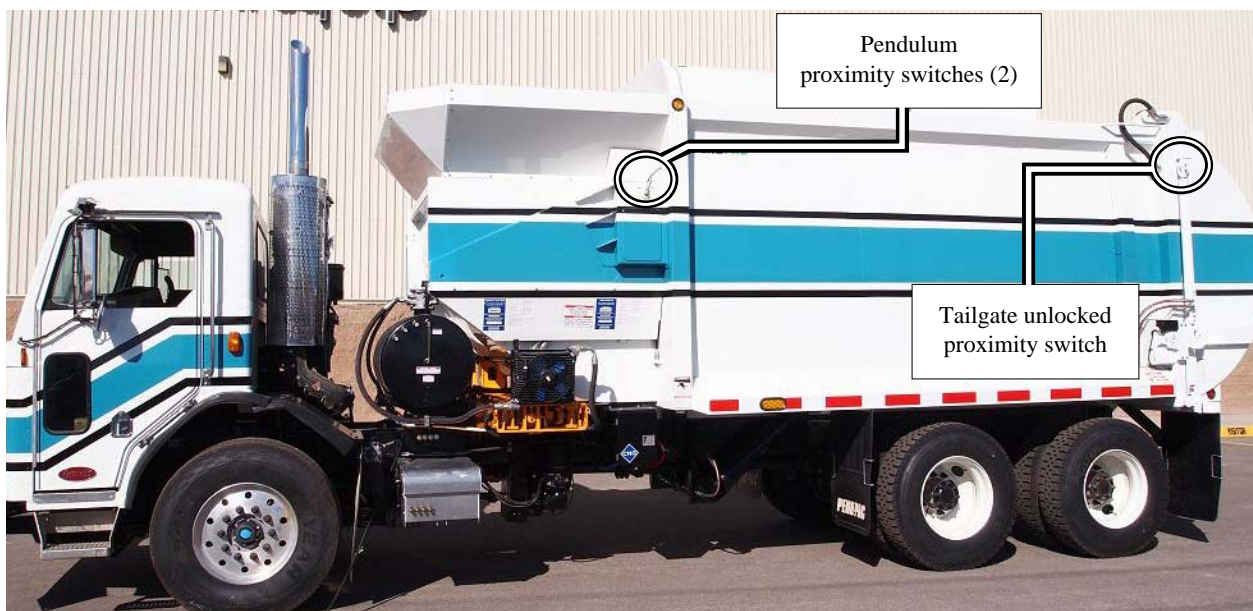


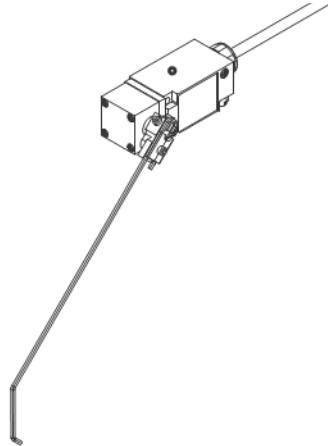
Figure 3-21 Location of the proximity switches (streetside)



Limit Switch Adjustment

The following is the general procedure for adjusting all the limit switches used on the ALLEY-GATOR RIGHT-HAND™, except for the mid-height limit switch, which calls for a different method of adjustment.

NOTE: All limit switches **MUST** be working at all times. Otherwise, the operator may not be aware that the arm is not fully retracted or that the grabber is open or closed. This may cause an accident, injuries or property damages.



To adjust a limit switch:

1. Loosen limit switch nut.
2. Move the lever arm to the approximate position where the switch is to be triggered.
3. Tighten nut.
4. To fine tune the adjustment, loosen nut slightly.
5. With a flathead screwdriver, turn the adjusting screw located at the center of the nut until a click is heard.
6. Tighten the nut.
7. Test the operation.
8. If necessary, repeat steps 1 through 7.

Proximity Switch Adjustment

Proximity switches utilize an electronic sensor to detect when solid material is within a certain distance of the switch face. The switches are constructed of stainless steel with a detachable wire connector.

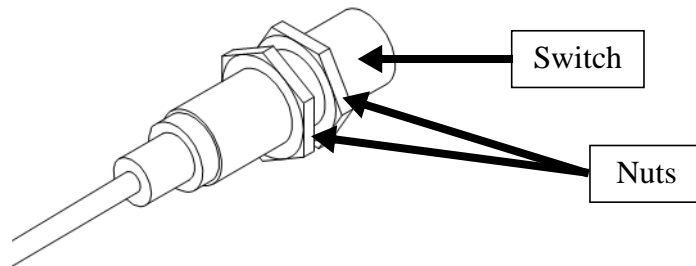
The proximity switches used to influence the operational controls of the arm and pendulum are known as *shielded proximity switches*. These switches will only detect objects in front of the switch, and will not detect objects beside the switch. When the proximity switch detects a solid object within the range of the switch a small light illuminates at the connector end.

If adjustment of a *shielded proximity switch* fails to correct the switch function, the switch shielding may have failed. This cannot be repaired and the switch must be replaced. Refer to pages regarding proper adjustment procedures for each individual switch.

NOTE: Proximity switches **MUST** function properly. Serious equipment damage may occur if you operate your vehicle with improperly adjusted or faulty switches. **REPLACE** faulty Alley-Gator Right-Hand™ Side Loader proximity switches with shielded proximity switches only.

NOTE: In order to effectively test a proximity switch you must use a multi-meter. Proximity switches have a low amperage and will not effectively test with a simple test-light.

The following is the general procedure for adjusting all the proximity switches used on the ALLEY-GATOR RIGHT-HAND™.



To adjust a proximity switch:

1. Loosen the proximity switch nuts.
2. Adjust the proximity switch so that there is a gap of approximately $\frac{1}{4}$ of an inch between the target (tab) and the switch.
3. Tighten up the nuts.
4. Test the operation.

The proximity switch light should turn on when the target is detected; if not, repeat the adjustment procedure. Use a multi-meter to make sure the switch works properly.

In the following sections, you will learn how to adjust limit/proximity switches based on the function for which they are used.

Access Ladder Extension Proximity Switch (optional)

The *access ladder extension proximity switch* is located on the bottom right hand corner of the ladder (see Figure 3-22).

This proximity switch is installed to shut down power to the pump switch when the ladder is in use. This disables all hydraulic functions.

Confirm activation of the proximity switch warning message (on the MDM display screen [see Figure 2-15]) and buzzer daily prior to operating the Alley-Gator Right-Hand™ Side Loader.

NOTE: Do not operate the Alley-Gator Right-Hand™ if this proximity switch is not functioning.

Figure 3-22 Access ladder proximity switch: ladder in “home” position, left; ladder in deployed position, right



How to Adjust

To adjust the access ladder proximity switch:

1. RETURN ladder to “home” position.
2. COMPLETE lockout/tagout procedure (see *Lockout/Tagout Procedure* on page 20).
3. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the tab.
4. TIGHTEN the proximity switch nuts.
5. TEST and repeat steps 3 and 4 as necessary.

Arm Mid-Height Limit Switches (2)

Both arm mid-height limit switches have two functions:

The lower switch allows the gripper to open when the arm is lower than the mid-height sensor and activates the gripper automatic close function when the arm is higher than the sensor.

The higher switch is used as a trigger for the camera auto-switching function when there are cameras on the right-hand wall and inside the hopper. It also provides a means of cushioning the grabber as it nears the top end of its stroke. No shock should occur when the grabber gets there.

Figure 3-23 Arm mid-height limit switches



The arm mid-height limit switches are located on front side of the arm.

These limit switches do not really need any adjustment other than the target itself. If they ever need adjustment, adjust the target so that the limit switch levers come in contact with the target when the arm rises. The length of the roller levers can also be adjusted for more precision.

Arm Stowed Limit Switches (2)

The arm stowed limit switches trigger the *arm not parked warning message* on the MDM display screen when the operator extends the arm or closes the gripper. If these limit switches are misaligned, the warning message on the MDM display screen may continue to appear even if the gripper is fully open and the arm fully retracted. The arm stowed limit switches also activate an audible alarm when the arm is out and the vehicle speed is greater than about 3 mph.

Figure 3-24 Arm stowed limit switches

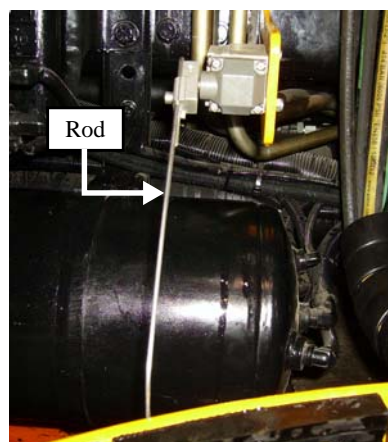
These limit switches are located behind each of the gripper fingers (one for each finger).

How to Adjust

To adjust the arm stowed limit switches:

1. Park the vehicle on safe level ground.
2. Fully open the gripper and retract the arm alongside the body.
3. Adjust both limit switches in such a way that the *arm not parked warning message* is cleared from the MDM display screen when the gripper is fully open and the arm is fully retracted. To do this:
 - 3 a. Loosen limit switch nut.
 - 3 b. Adjust the rod so that the gripper finger will trigger the limit switch (click sound) and turn off the warning message.

For the *arm not parked warning message* to stop appearing on the MDM display screen, both limit switches may require to be adjusted.



- 3 c. Tighten back up nut.
4. Slightly close the gripper or extend the arm out (about 1 inch). The *arm not parked warning message* should reappear on the MDM display screen.

5. Repeat the procedure until both limit switches are properly adjusted.

Danger!



All limit switches **MUST** be working at all times. Otherwise, the operator may not be aware that the arm is not fully retracted or that the gripper is open or closed. This may cause accidents, injuries and/or property damage.

Pendulum Proximity Switches

Both the *pack* and *return proximity switches* are mounted on a plate above the pendulum arm pivot at the rear of the hopper bowl on the streetside of the vehicle. These proximity switches are protected by a removable cover (see Figure 3-26).

Figure 3-25 Pack and return proximity switches

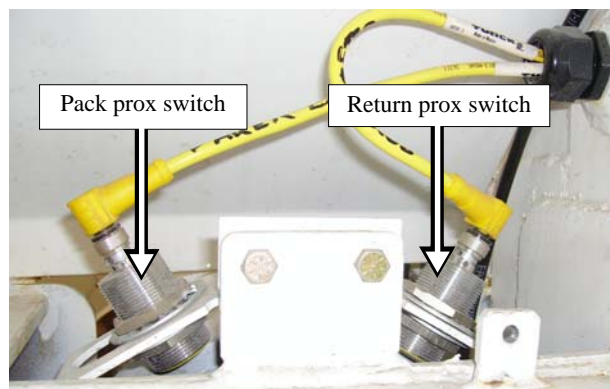
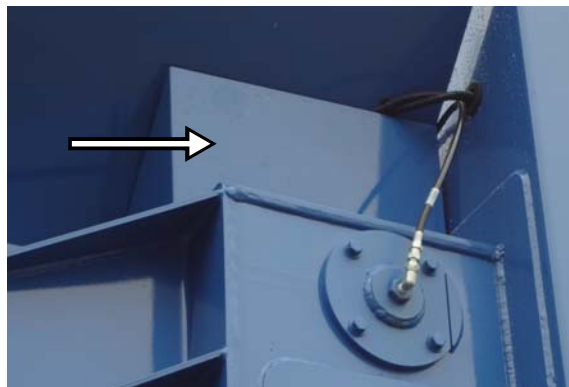


Figure 3-26 Removable cover



The *pack* and *return proximity switches* are normally open. These switches control the AUTOPACK cycle as follows:

- ♦ The *pack proximity switch* is triggered by a tab mounted to the pendulum arm pivot. When the pendulum travels to the rear of the hopper bowl, the tab **ACTIVATES** the proximity switch and the contacts close. This **SENDS** a signal to the control module, which then sends a signal to the pendulum to **BEGIN** the **PACKING** sweep.

- ♦ The return proximity switch is triggered by a tab mounted to the pendulum arm pivot. When the pendulum travels to the front of the hopper bowl, the tab ACTIVATES the proximity switch and the contacts close. This SENDS a signal to the control module, which then sends a signal to the pendulum to BEGIN the RETURN sweep.

Adjusting Pack and Return Proximity Switches

Figure 3-27 Proper position to adjust pendulum proximity switches



NOTE: This adjustment is carried out with the system 'LIVE', that is, the pump is ON and the PENDULUM is in OPERATION. *Two persons are required to make this adjustment, one in the cab to operate the controls and a second to adjust the proximity switches from the outside of the hopper bowl.*

Danger!



Extreme caution must be exercised when completing this adjustment as falling into the hopper while the pendulum is in operation will almost certainly result in death.

To adjust the pack and return proximity switches:

1. REMOVE the protective cover (see Figure 3-26).
2. LOOSEN the mounting nuts for the *pack proximity switch* (see Figure 3-25) and move it fully FORWARD in the mounting slot.
3. Operate a MANUAL pack cycle and move the pendulum fully to the rear of the hopper bowl.
4. ADJUST the proximity switch within the slot until the tab is in front of the proximity switch face.
Note that the proximity switch indicator light will be ON. ENSURE the proximity switch gap is approximately 1/4".
5. TIGHTEN the proximity switch mounting nuts.
6. LOOSEN the mounting nuts for the *return proximity switch* (see Figure 3-25) and move it fully forward in the mounting slot.
7. Operate a MANUAL return cycle and move the pendulum fully to the front of the hopper bowl.
8. ADJUST the proximity switch within the slot until the tab is in front of the proximity switch face (see Figure 3-28).

Note that the proximity switch indicator light will be ON. ENSURE the proximity switch gap is approximately $\frac{1}{4}$ ".

9. TIGHTEN the proximity switch mounting nuts.
10. INITIATE an AUTOPACK cycle and observe the sweep of the pendulum.
11. If no more adjustment is needed put back the protective cover.

Figure 3-28 Return proximity switch and tab



In the PACK MODE, the pendulum should complete a full sweep and enter the body chamber by several inches without the cylinders bottoming out (fully stroked). Repeat steps 2 through 5 as necessary.

In the RETURN MODE, the pendulum should travel fully forward in the bowl and stop before the cylinders bottom out (fully retracted). Repeat steps 6 through 9 as necessary.

NOTE: The autopack cycle should be checked with the engine running at 1500 rpm. The pendulum should transition smoothly between the PACK and RETURN cycles with no banging at the top and bottom of the motion.

Cycle Times	
At idle	18 seconds
At 1500 rpm	12 seconds

Tailgate Unlocked Proximity Switch

The *tailgate unlocked proximity switch* is located on the streetside of the tailgate near the rod-side cylinder head (see Figure 3-29).

This switch gets triggered when the cylinder casing is sufficiently near the switch head. This occurs when the cylinder is fully retracted.

When the tailgate is unlocked/open, the tailgate cylinder is partially/fully extended and no triggering of the proximity switch occurs; the cylinder having moved downward away from the switch¹. This triggers the *tailgate unlocked warning message* on the MDM display screen (see Figure 2-15) and the warning buzzer inside the cab. The *tailgate unlocked proximity switch* also activates the backup alarm.

When the tailgate is locked/closed, the tailgate cylinder is fully retracted and triggering of the proximity switch occurs; the cylinder having moved upward toward the switch². When the switch is triggered, the warning buzzer and backup alarm stop sounding. This also erases the *tailgate unlocked warning message* from the MDM display screen (see Figure 2-15), and packing operation can resume.

However, some troubles may occur if the *tailgate unlocked proximity switch* is out of adjustment. For example, the tailgate is locked but the in-cab buzzer is still sounding or the *tailgate unlocked warning message* is not showing on the MDM display screen (see Figure 2-15) while the tailgate is still open. In such cases, adjusting the *tailgate unlocked proximity switch* is required.

Figure 3-29 Location of tailgate unlocked proximity switch

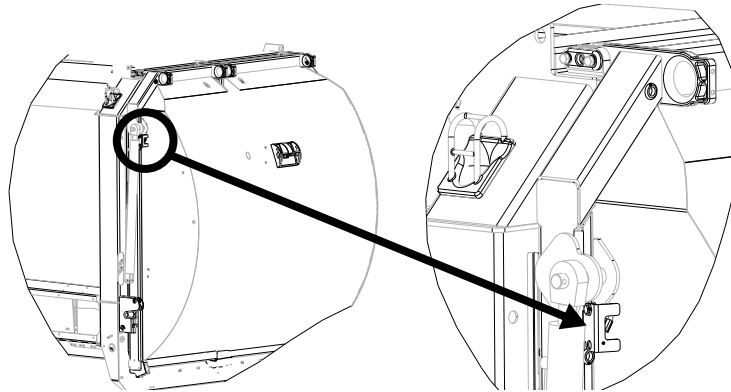
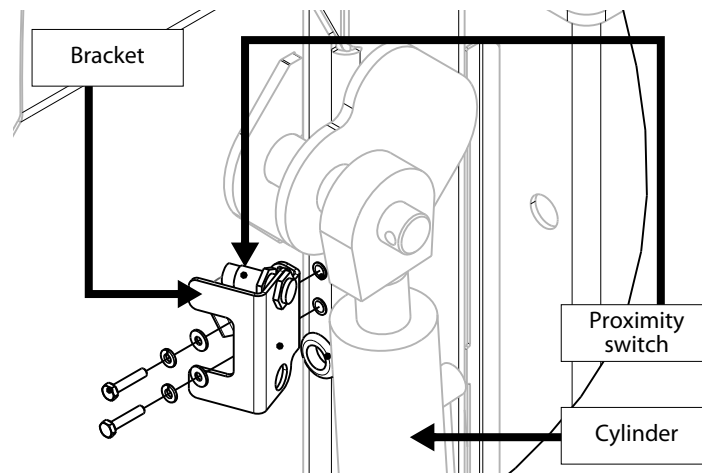


Figure 3-30 Proximity switch support assembly



1. The first thing the tailgate cylinder does when the operator presses and holds the TAILGATE UP switch is to unlock the tailgate, resulting in the cylinder head moving away from the proximity switch, thus making triggering no more possible.
2. The last thing the tailgate cylinder does when the operator presses and holds the TAILGATE DOWN switch is to lock the tailgate, resulting in the cylinder head moving closer to the proximity switch, thus making triggering possible.

To adjust the tailgate unlocked proximity switch:

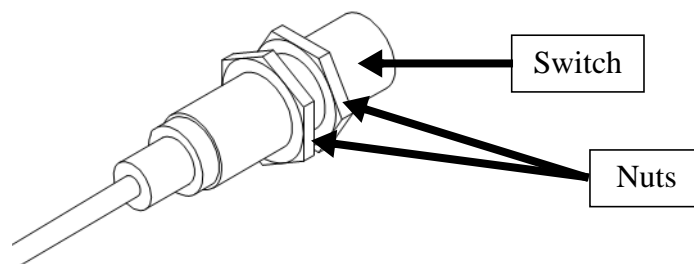
1. RELIEVE pressure on the tailgate pins by pressing the lower part of the “Rear Door” button on the MDM module.
Do not forget to press the “Doors Enable” button at the same time.
2. REMOVE both tailgate pins (see Figure 3-31).
3. LOOSEN the mounting nuts on each side of the proximity switch bracket (see Figure 3-32).
4. SLIDE the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the cylinder casing.
5. TIGHTEN the proximity switch nuts.
6. OPEN the tailgate.
7. EXAMINE that the *tailgate unlocked warning message* appears on the MDM display screen and that the buzzer and backup alarm sound immediately after the switch lost contact with the target.
8. CLOSE the tailgate completely.
9. EXAMINE that the *tailgate unlocked warning message* has disappeared and that both the buzzer and the backup alarm are silent.
10. REPEAT steps 3, 4 and 5 as necessary.
11. If no more adjustment is needed, PUT BACK both tailgate pins.

Figure 3-31 Tailgate pin in stored position



NOTE: The *tailgate unlocked proximity switch* also serves as a lockout function for the *body up/down switch*. The body is prevented from being raised from inside the cab unless the tailgate is open.

Figure 3-32 Proximity switch



Body Raised Proximity Switch

The *body raised proximity switch* is center mounted on the curbside chassis frame rail.

Figure 3-33 Body raised proximity switch



The *body raised proximity switch* is not ACTIVATED when the main seal of the body loses contact with the chassis. The proximity switch then triggers the *body raised warning message* to appear on the MDM display screen (see Figure 2-15). Upon returning the body to the seated position, the *body raised proximity switch* is ACTIVATED and the *body raised warning message* is disappeared from the MDM display screen.

How to Adjust

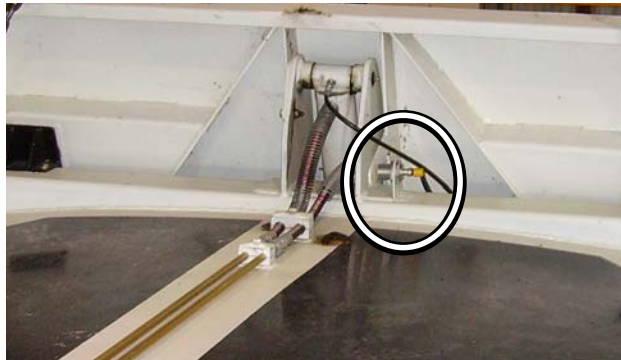
To adjust the *body raised proximity switch*:

1. RAISE the body and position the hoist safety prop. Refer to “Stabilizing A Hoisted Body” in the Operator’s Manual.
2. COMPLETE the Lockout/Tagout Procedure (refer to “Lockout/Tagout Procedure” on page 20).
3. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the target.
4. TIGHTEN the proximity switch nuts.
5. START the side loader and switch ON the hydraulic pump.
6. RETURN the hoist safety prop to the resting position and LOWER the body.
7. RAISE the body again and CHECK that the *body raised warning message* appears on the MDM display screen (see Figure 2-15) and the buzzer sounds as soon as the body is not properly seated on the chassis.
8. LOWER the body until contact with the chassis is made. CHECK that the *body raised warning message* disappears and buzzer is silent only when the body is properly seated on the chassis.
9. TEST and REPEAT steps 1– 4, if necessary.

Hopper Cover Proximity Switch (optional)

This is ***an optional switch*** and may not be mounted on your vehicle, otherwise the *hopper cover proximity switch* is mounted on the body roof next to the hopper cover cylinder.

Figure 3-34 Hopper cover proximity switch



The *hopper cover proximity switch* disables the lift from proceeding in an upward motion should the hopper cover not be completely open. This proximity switch also triggers a *hopper cover warning message* to appear on the MDM display screen.

How to Adjust

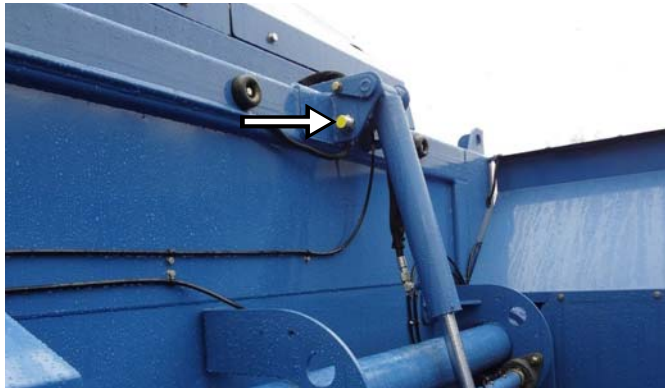
To adjust the hopper cover proximity switch:

1. Fully OPEN the hopper cover.
2. COMPLETE the Lockout/Tagout Procedure (refer to “Lockout/Tagout Procedure” on page 20).
3. LOOSEN the proximity switch mounting nuts.
4. SLIDE the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the tab of the hopper cover.
5. TIGHTEN the proximity switch nuts.
6. TEST the operation of the switch and REPEAT the steps as necessary.

Crusher Panel Up Proximity Switch (optional)

The *crusher panel up proximity switch* (see Figure 3-35) disables the lift from proceeding in an upward motion should the crusher panel not be completely raised. This proximity switch also triggers a *crusher panel warning message* to appear on the MDM display screen.

Figure 3-35 Crusher panel up proximity switch



How to Adjust

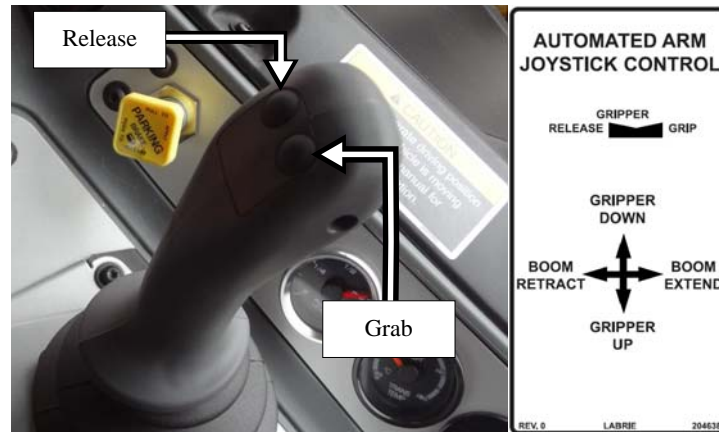
NOTE: The crusher panel has to be lowered to access this proximity switch.

To adjust the crusher panel up proximity switch:

1. Fully LOWER the crusher panel.
2. COMPLETE the Lockout/Tagout Procedure (refer to “Lockout/Tagout Procedure” on page 20).
3. ENTER the hopper.
4. LOOSEN the proximity switch mounting nuts.
5. SLIDE the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the tab of the crusher panel.
6. TIGHTEN the proximity switch nuts.
7. EXIT the hopper.
8. TEST the operation of the switch and REPEAT the steps as necessary.

Joystick

The joystick is a dual axis, electronic remote control lever that allows the operator to perform two proportional functions at the same time. Proportional operations control all movements of the arm and slide. The on-off thumbswitches located on the top of the lever are used to operate the grabber controls.

Figure 3-36 Joystick


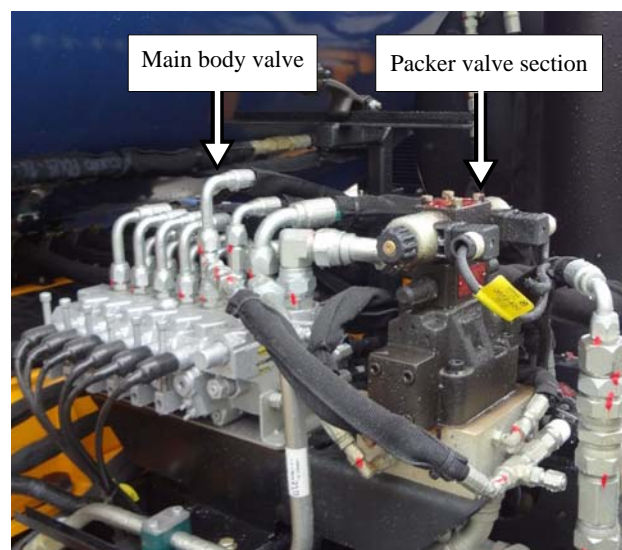
Valve Bank

The hydraulic valve bank is controlled by proportional solenoids.

The main body valve (see Figure 3-37) is equipped with proportional solenoids. These solenoids are activated through the control module.

The packer valve section (see Figure 3-37) is fitted with solenoids that are electrically activated by two proximity switches mounted to the body via the control module. These solenoids are 12 volt, on/off.

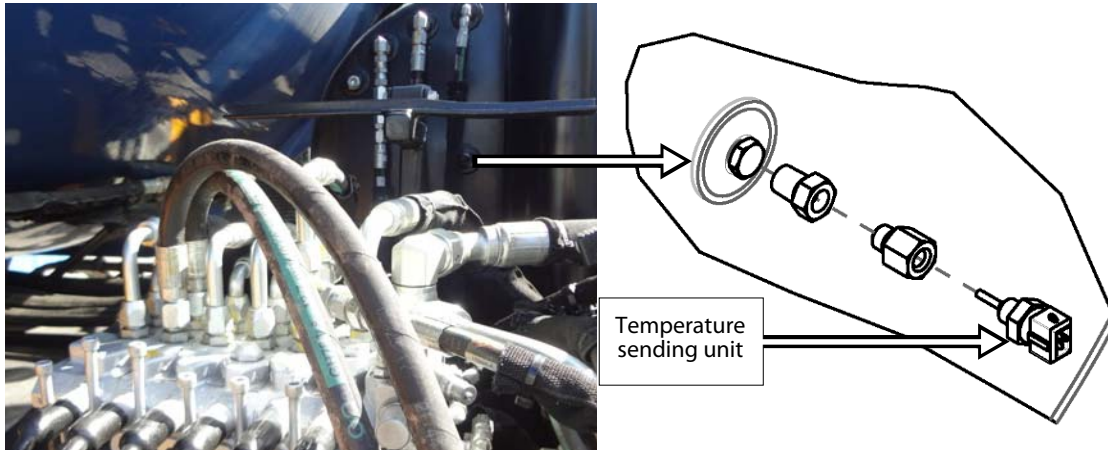
NOTE: When facing the main body valve, the packer valve section is located on the right side of the body valve (see Figure 3-37).

Figure 3-37 Valve bank


Temperature Sending Unit (optional)

If a *temperature sending unit* is installed on the hydraulic oil tank (see Figure 3-38), oil temperature can be monitored by the IQAN. When the temperature reaches 200°F (93.33°C), a corresponding warning message appears on the MDM display screen.

Figure 3-38 Temperature sending unit

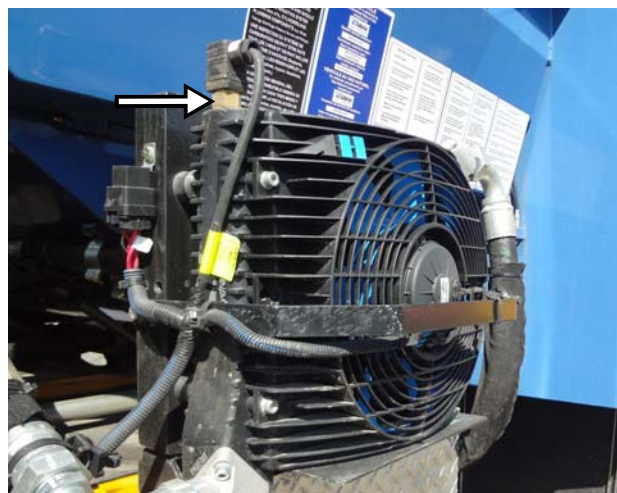


Oil Cooler Fan Thermostat

When the pack circuit hydraulic oil temperature exceeds 150° F (66° C), the thermostat is triggered and a relay is tripped. The fan motor will circulate during the time the oil temperature exceeds the safe thermostat rating. The battery power is protected by a 20-A fuse.

See the location of the fan thermostat in Figure 3-39.

Figure 3-39 Fan thermostat



Hour Meter

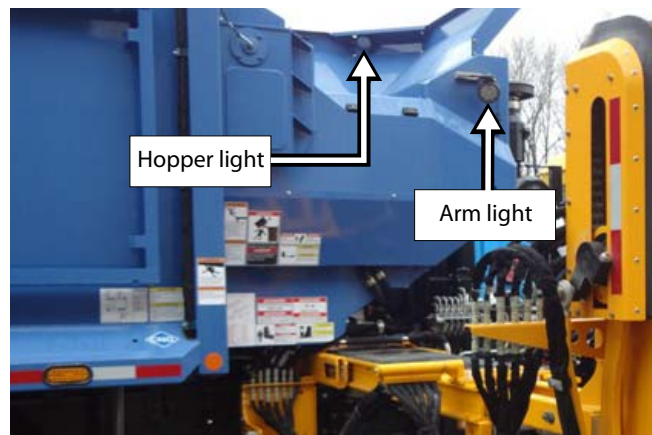
The hour meter device records the duration of the pump ON time and is accessible through the MDM display screen.

NOTE: Tampering with the hour meter **WILL VOID WARRANTY**.

Lighting & Camera Equipment

Please note that there are numerous lighting and camera options available for your Alley-Gator Right-Hand™. Please consult with the chassis dealer/Labrie for further recommendations, additions and technical data.

Figure 3-40 Arm/hopper lights



Hydraulic System Maintenance & Safety

The hydraulic system of your Alley-Gator Right-Hand™ may require periodic system check and adjustments. It may be that a major hydraulic component has been changed, the unit is not performing in terms of payload, or the unit has recently been put into service and the system requires adjustment following a run-in period.

Hydraulic Safety Warnings

Follow a proper lockout/tagout procedure prior to servicing the hydraulics. Refer to “Lockout/Tagout Procedure” on page 20.

Mechanics performing hydraulic system maintenance must have previous hydraulic experience.

Pressure and Cycle Time Chart - Packer Circuit

Function	Pressure Setting	Engine RPM	Cycle Time (sec.) MIN.	Cycle Time (sec.) MAX.
Relief on pump manifold	3000 \pm 50 PSI	700	n/a	n/a
Relief on packer valve	2700 \pm 50 PSI	700	n/a	n/a
Complete packer cycle	System pressure	700	22	25
Packer counterbalance valve	See procedure on page 93	700	n/a	n/a

Pressure and Cycle Time Chart - Body Circuit

Function	Pressure Setting	Engine RPM	Cycle Time (sec.) MIN.	Cycle Time (sec.) MAX.
VPL main relief valve	2800 \pm 50 PSI	700	n/a	n/a
Body hoist up	2500 \pm 100 PSI	700	65,0	75,0
Body hoist down	500 \pm 100 PSI	700	45,0	55,0
Tailgate up	2500 \pm 100 PSI w/ power bleed from packer	700	14,0	17,0
Tailgate down	2500 \pm 100 PSI w/ velocity fuse to drain	700	16,0	18,0
Crusher panel up pressure limiter	2500 \pm 50 PSI	700	4,0	5,0
Crusher panel down pressure limiter	2500 \pm 50 PSI	700	3,0	4,0
Top door open pressure limiter	1400 \pm 50 PSI	700	n/a	n/a

Function	Pressure Setting	Engine RPM	Cycle Time (sec.) MIN.	Cycle Time (sec.) MAX.
Top door close pressure limiter	1400 ± 50 PSI	700	n/a	n/a
Crusher panel up / top door open relief	3350 ± 50 PSI - non adjustable	700	n/a	n/a
Crusher panel down / top door close relief	3350 ± 50 PSI - non adjustable	700	n/a	n/a

Pressure and Cycle Time Chart - Right-Hand Arm Circuit

Function	Pressure Setting	Engine RPM	Cycle Time (sec.) MIN.	Cycle Time (sec.) MAX.
Gripper close on std gripper / Gripper close (low pressure) on 300-gallon gripper	1200 ± 50 PSI	700	1,5	2,5
Gripper close (high pressure) on 300-gallon gripper	1800 ± 50 PSI	700	1,5	2,5
Gripper open	1200 ± 50 PSI	700	1,5	2,5
External gripper close holding valve w/ flow divider to keep gripper open (standard arm)	550 ± 50 PSI	700	n/a	n/a
Gripper close cylinder holding valve to keep gripper open (HD arm only)	550 ± 50 PSI	700	n/a	n/a
Arm up	2000 ± 50 PSI	700	3,0	4,0
Arm down	2000 ± 50 PSI	700	2,5	3,5
Arm up holding valve to keep arm down (HD arm only)	750 ± 50 PSI	700	n/a	n/a
Arm down holding valve to keep arm up (HD arm only)	750 ± 50 PSI	700	n/a	n/a

Function	Pressure Setting	Engine RPM	Cycle Time (sec.) MIN.	Cycle Time (sec.) MAX.
Arm extend	2000 \pm 50 PSI	700	4,5	5,5
Arm retract	2000 \pm 50 PSI	700	3,0	4,0
Arm extend cylinder holding valve to keep arm retracted	650 \pm 50 PSI	700	n/a	n/a

Hydraulic Hose

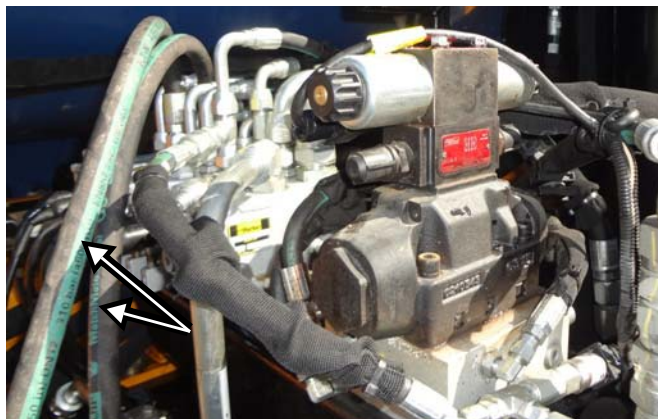
The Alley-Gator Right-Hand™ hydraulic system is supported with the very best quality hydraulic hoses. Any hydraulic hose showing any sign of damage requires replacement. In doing so, it is important that maintenance personnel select hose replacements with the SAME SAE rating as identified on the original hose.

Detailed hydraulic hose information is provided by the Labrie*Plus* Parts Department. Please contact Labrie for further hose descriptions and coupling guidelines when selecting replacement hoses for the Alley-Gator Right-Hand™ hydraulic system.

As outlined in the Maintenance Schedule starting on page 38, a daily pre-trip inspection is to be performed by the operator. We advise maintenance personnel to perform a monthly hydraulic hose inspection for leaks and wear.

NOTE: Each hose is clearly identified by a “lay line”.

Figure 3-41 “Lay line” on hoses

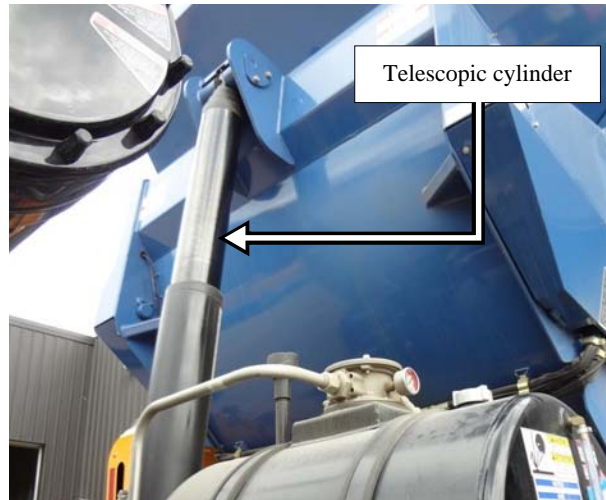


Hydraulic Cylinders

Hydraulic cylinders convert hydraulic power into linear motion and force. The force generated by a hydraulic cylinder is a product of pressure and effective area. When sizing a cylinder for a specific application, the relationships between pressure, area, displacement volume, flow, speed and the

influence of inefficiencies must be considered. Labrie Enviroquip Group uses only first grade hydraulic cylinders of the highest quality. Standard double acting and telescopic cylinders are fitted to your Alley-Gator Right-Hand™.

IMPORTANT: High pressure fluid is present in operational hydraulic systems. Fluids under high pressure are dangerous and can cause serious injury or death. Only highly qualified and competent maintenance personnel should make modifications, repairs or adjustment to any hydraulic system. Should you have any doubts, CONSULT THE MANUFACTURER.



PTO-Driven or Front-Mounted Pump

The pump used on the Alley-Gator Right-Hand™ is either driven by the power take-off (PTO) or front-mounted through the engine crane shaft. Your Alley-Gator Right-Hand™ has been manufactured to your requirements; each chassis size custom ordered. Type of pump installation varies according to the chassis and manufacturer.

General PTO Safety Information

NOTE: Labrie Enviroquip Group has given careful consideration to your operational needs and the importance of properly matching the vehicle transmission and auxiliary equipment to the correct PTO. If your Alley-Gator Right-Hand™ is PTO equipped, it has been fitted with either a Chelsea or Muncie PTO.

Carefully refer to your Chelsea or Muncie owner's manuals, service manuals and/or other instructions provided with your Alley-Gator Right-Hand™. Always follow proper installing, operating and repairing procedures. Only use proper components in application for which they are approved. Be sure to assemble components properly and never use worn-out or damaged components.

Danger!

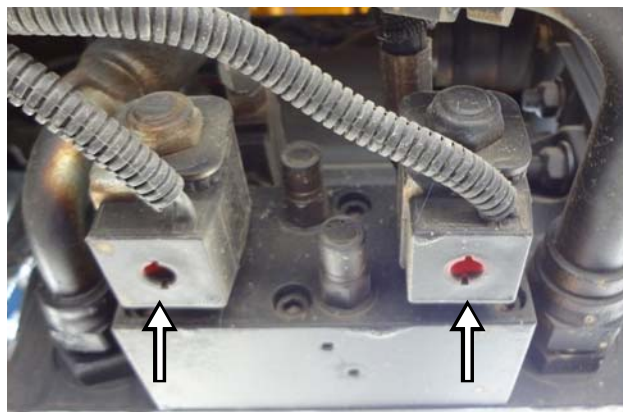


Never operate the controls of the power take-off from any position that could result in getting caught in the moving PTO.

Hydraulic Vane Pump

Alley-Gator Right-Hand™ vehicles are equipped with a dual vane pump. Both sections of the dual vane pump are activated by two electric solenoid valves. Both of these valves are mounted on the pump assembly (see Figure 3-42). The electric signal that activates the solenoids is sent by the pump switch through the control module.

Figure 3-42 Solenoids on hydraulic pump



Directional Control Valve

Your Alley-Gator Right-Hand™ is equipped with a ***packer directional control valve*** and an ***arm and body directional control valve***. These solenoid operated directional valves are for directing and stopping flow at any point in the hydraulic system. The directional valves are designed to provide smoother control of actuator acceleration and deceleration reducing hydraulic shock and increasing component longevity.

Packer Directional Control Valve

The packer directional control valve is bolted to the main manifold and is fitted with an adjustable spool throttle valve that enhances smooth spool shifting (see Figure 3-69). Adjustments may be done by turning the adjustment capscrew clockwise to increase the shifting time and counter-clockwise to decrease the spool shifting time. The spool throttle manifold block houses a shuttle valve which sends

the signal to the hydraulic pump to supply hydraulic fluid to the hydraulic system. The packer directional control valve also houses a relief valve that is located in the subplate manifold. This relief valve limits the pressure of the packer system.

Arm and Body Directional Control Valve

The arm and body directional control valve is mounted to the chassis frame in front of the hopper bowl. The directional control valve is solenoid operated and consists of working sections each individually devoted to a single hydraulic function. Identification of each section is made as such, from left to right: arm in/out, arm up/down, grabber open/close, hopper cover open/close (optional) or crusher panel up/down (optional), tailgate up/down and body hoist up/down.

NOTE: Starting from the left, the 4th section of the arm and body directional control valve is an optional working section.

The directional control valve has a main relief valve that has been set to 2800 psi; this setting should not be adjusted. The individual working section relief valves should not require adjustment. However, should adjustment become necessary, pressure adjustment guidelines are outlined on page 84.

Hydraulic Pressure Adjustments

Main Valve Standby Pressure Adjustment

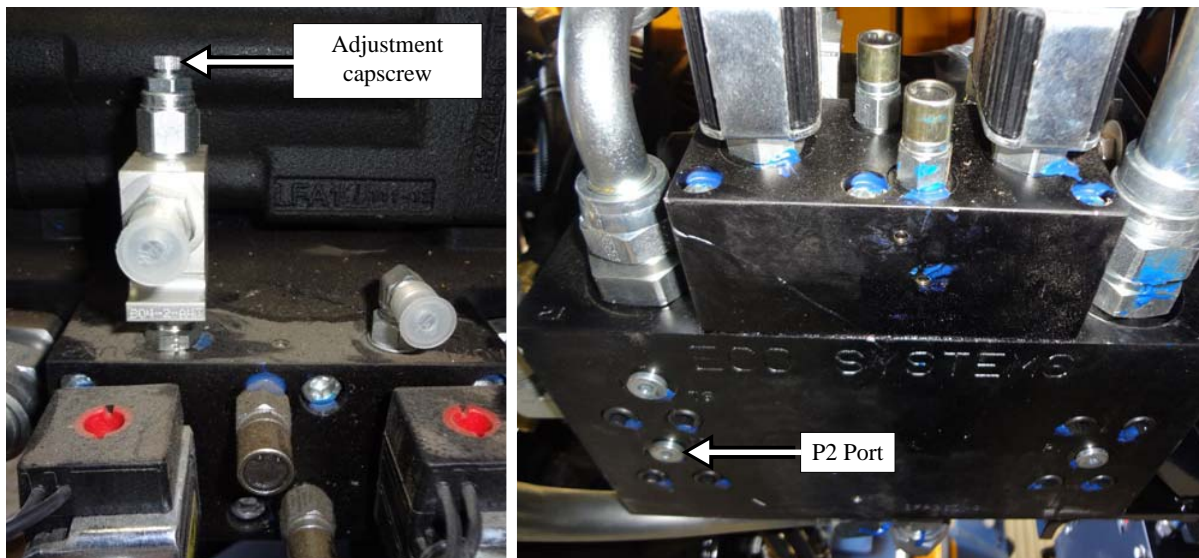
IMPORTANT: Adjustments to the main (arm and body) valve system pressure must be performed by qualified maintenance personnel only. Improper procedure or exceeding correct pressure setting can cause equipment failure/damage, injury or death.

NOTE: Prior to adjusting the hydraulic arm and body circuit pressures, maintenance personnel must first ensure that the standby pressure is 250 psi.

To adjust the standby pressure, proceed as follows:

1. ENSURE the pump is disengaged and the engine is OFF.
2. INSERT a 0-3000 psi gauge into the P2 port (see Figure 3-43).
3. START the truck.
4. With the pump ON and no functions operating, SET the pressure to 250 psi by turning the adjustment capscrew (see Figure 3-43) clockwise or counter-clockwise depending on the gauge reading.
5. REMOVE the gauge after correctly setting the pressure.

Figure 3-43 Standby pressure adjustment



Upon completion of achieving the proper standby pressure, maintenance personnel may then carry out hydraulic system pressure adjustments.

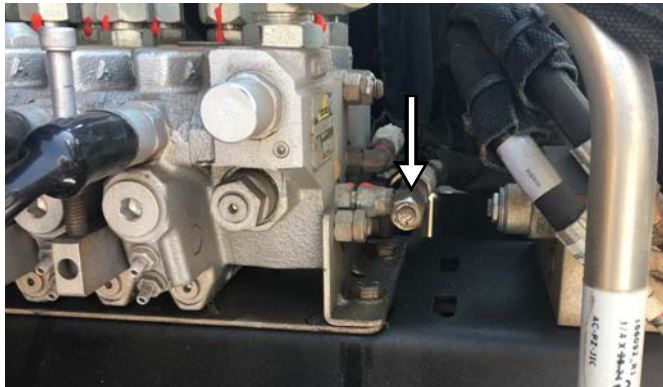
Arm & Body Circuit Hydraulic Pressure Adjustments

To adjust the arm and body circuit hydraulic pressure:

1. ENSURE the pressure gauge is in the pressure test port of the directional control valve (see Figure 3-44).
2. While the engine is running and the pump is ON, OPERATE the tailgate circuit to the fully closed position by pushing the tailgate lever.

The gauge should read a **system pressure of 2500 psi**.

Figure 3-44 Test port on arm and body directional control valve



NOTE: An adaptor may be needed to connect the gauge to the test port.

Figure 3-45 Connecting the gauge to the test port using an adaptor



If adjustment is required, it is performed simultaneously as described:

NOTE: Two people are needed to make this adjustment correctly.

3. ENSURE the pump is disengaged and the engine is OFF.
4. LOOSEN the locknut of the main relief valve (see Figure 3-46) and with an Allen key TURN the adjustment screw clockwise until it stops.
5. On the tailgate section, LOOSEN the locknut of the front relief valve (see Figure 3-47).

6. TURN the tailgate relief valve adjustment screw clockwise until it stops using an Allen key.

Figure 3-46 Main relief valve - arm and body directional control valve

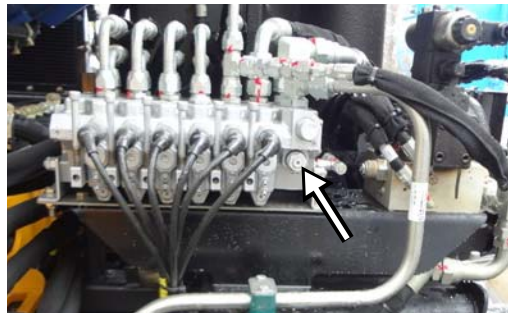
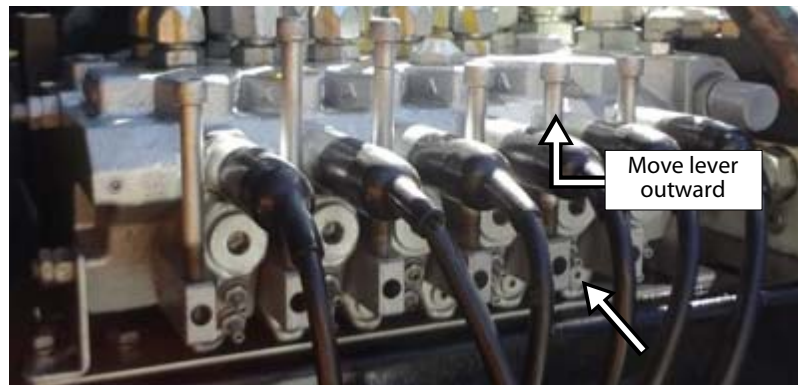


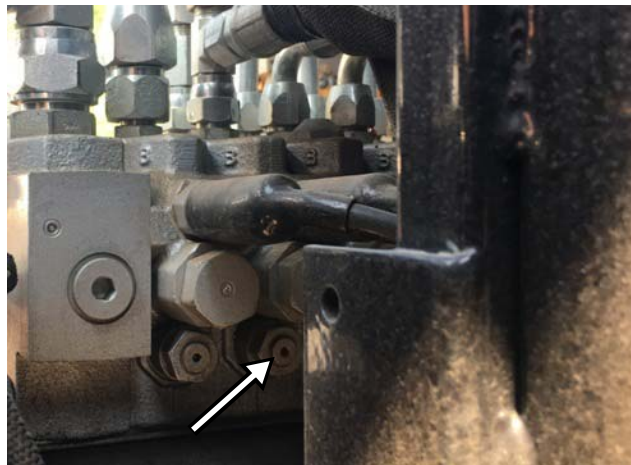
Figure 3-47 Tailgate section front relief valve



7. REDUCE arm and body pump pressure to minimum using the main relief valve (see Figure 3-48). To do so:
 - 7 a. REMOVE the cap from the relief valve, LOOSEN the locknut and TURN the adjustment screw OUT to decrease pressure.
 - 7 b. Once completed, TIGHTEN BACK the locknut.
8. START the truck and ENGAGE the pump.
9. While a helper is pulling the tailgate lever outward ADJUST the main relief valve pressure on the arm and body hydraulic pump (see Figure 3-48). To do so:
 - 9 a. LOOSEN the locknut.
 - 9 b. TURN the adjustment screw IN to RAISE PRESSURE.
The pressure should be set at 3000 psi.
 - 9 c. Once completed, TIGHTEN BACK the locknut and PUT BACK the cap.

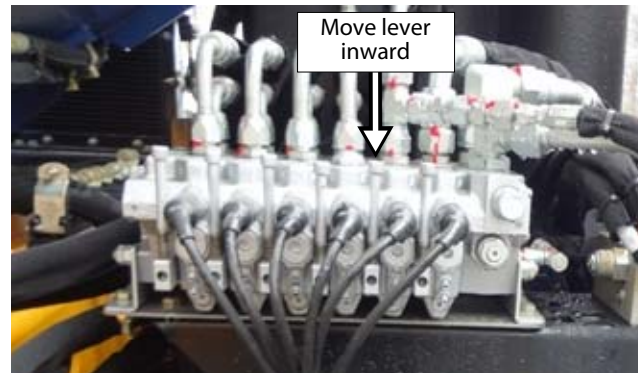
Figure 3-48 Main relief valve on arm & body pump

10. Once the pressure of the main relief valve on the arm and body pump has been properly set, **ADJUST** the main relief valve pressure on the main (arm and body) valve (see Figure 3-46). To do so:
 - 10 a. Using an Allen key **TURN** the adjustment screw **COUNTER-CLOCKWISE** until the pressure reaches 2800 psi.
 - 10 b. Once done, **TIGHTEN BACK** the locknut of the main relief valve.
11. Once the pressure of the main relief valve on the main (arm and body) valve has been properly set, **ADJUST** the tailgate section front relief valve pressure (see Figure 3-47). To do so:
 - 11 a. While pulling the tailgate lever outward, **TURN** the tailgate adjustment screw **COUNTER-CLOCKWISE** until the pressure reaches 2500 psi using an Allen key.
 - 11 b. Once done, **TIGHTEN BACK** the locknut of the tailgate front relief valve.
12. **LOOSEN** the locknut of the tailgate section rear relief valve (at the back of the arm and body directional control valve) [see Figure 3-49].

Figure 3-49 Tailgate section relief valve at rear of valve block

13. With an Allen key, **ADJUST** the pressure to 2500 psi while pushing the tailgate section lever inward (assuming that you are behind the valve block).
TURN the adjustment screw **IN** to **RAISE** the **PRESSURE** or **OUT** to **DECREASE PRESSURE**.
Correct pressure is 2500 psi.

Figure 3-50 Tailgate section lever



14. Once done, TIGHTEN BACK the locknut.
15. PROCEED with the pressure adjustment on the remaining working sections of the arm and body directional control valve. For each remaining working section, do the following:
 - 15 a. LOOSEN the locknut of the front relief valve.
 - 15 b. While pulling the section lever outward, TURN the adjustment screw CLOCKWISE or COUNTER-CLOCKWISE until the pressure reaches the proper value using an Allen key.
See page 80 for the proper value corresponding to the working section of which the pressure is being adjusted.
 - 15 c. Once done, TIGHTEN BACK the locknut of the front relief valve.
 - 15 d. LOOSEN the locknut of the rear relief valve.
 - 15 e. While pushing the section lever inward, TURN the adjustment screw CLOCKWISE or COUNTER-CLOCKWISE until the pressure reaches the proper value using an Allen key.
See page 80 for the proper value corresponding to the working section of which the pressure is being adjusted.
 - 15 f. Once done, TIGHTEN BACK the locknut of the rear relief valve.

NOTE: Refer to page 80 for the exact location of each section of the arm and body directional control valve along with the corresponding pressure to apply.

Packer Circuit Hydraulic Pressure Adjustment

To adjust the packer circuit hydraulic pressure:

1. ENSURE the pressure gauge is connected to the pressure test port of the packer circuit control valve (see Figure 3-51).

IMPORTANT: Before connecting the gauge to the test port, ensure the truck's engine is turned off.

NOTE: An adaptor may be needed to connect the gauge to the test port.

2. While the engine is running and the pump is ON, have a helper operate the packer in either direction using the PACKER PANEL switch on the in-cab control panel.

While the packer is moving, check on the gauge : it ***should read 2700 psi.***

Figure 3-51 Test port



If adjustment is required, it is performed simultaneously as described:

NOTE: Two people are needed to make this adjustment correctly.

3. ENSURE the pump is disengaged and the engine is OFF.
4. REMOVE the cap from the main relief on the packer valve (see Figure 3-52).

Figure 3-52 Packer relief valve



5. LOOSEN the locknut of the relief valve and with an Allen key TURN the adjustment screw clockwise until it stops.
6. REDUCE packer pump pressure to minimum using the main relief valve (see Figure 3-53). To do so:
 - 6 a. REMOVE the cap from the relief valve, LOOSEN the locknut and TURN the adjustment screw OUT to decrease pressure.
 - 6 b. Once completed, TIGHTEN BACK the locknut.
7. START the truck and ENGAGE the pump.
8. While a helper is operating the packer (cylinder bottoming out in both directions), ADJUST the main relief valve on the packer hydraulic pump (see Figure 3-53). To do so:
 - 8 a. LOOSEN the locknut.
 - 8 b. TURN the adjustment screw IN to RAISE PRESSURE.
The pressure should be set at 3000 psi.
 - 8 c. Once completed, TIGHTEN BACK the locknut and PUT BACK the cap.

Figure 3-53 Main relief valve on packer pump



- 9.** Once the pressure of the packer pump relief valve has been properly set, **ADJUST** the relief valve pressure on the packer valve (see Figure 3-52). To do so:
 - 9 a.** Using an Allen key **TURN** the adjustment screw **COUNTER-CLOCKWISE** until the pressure reaches 2700 psi.
The packer must be cycling while the pressure is being adjusted.
 - 9 b.** Once done, **TIGHTEN BACK** the locknut and **PUT BACK** the cap on the relief valve.

Working Sections of the Arm & Body Directional Control Valve

The directional control valve consists of working sections, each individually devoted to two hydraulic functions (Figures 3-56 and 3-57). Each section has outlet ports with secondary relief valves, each one functioning with different working pressures. The correct pressure settings are outlined below:

Figure 3-54 Arm and body directional valve (part 1)

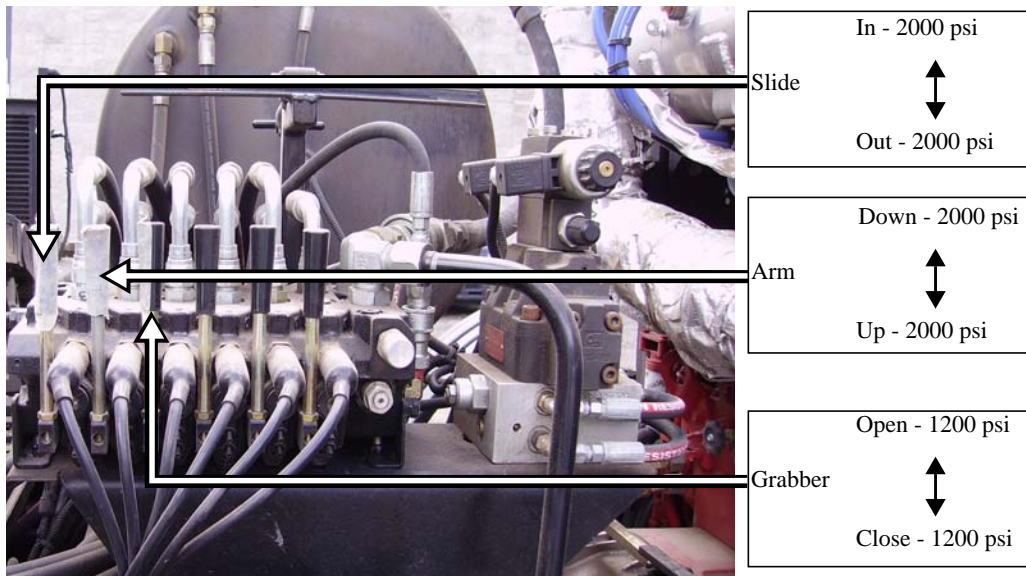
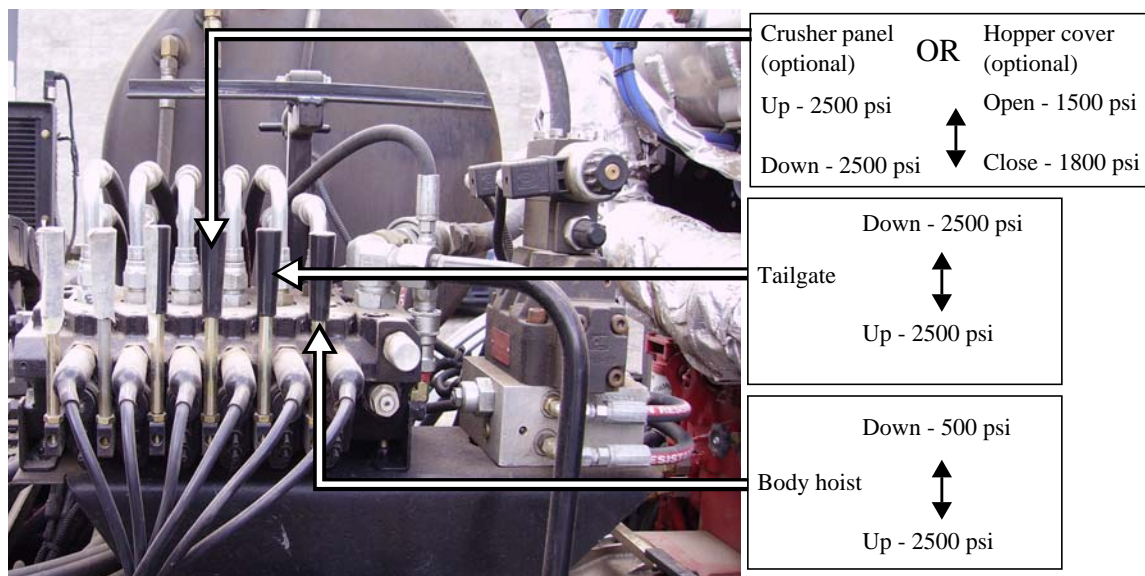


Figure 3-55 Arm and body directional valve (part 2)



The individual working section secondary relief valves should not require adjustment. However, should adjustment become necessary, individually operate each hydraulic function and adjust the relief screw until the correct pressure is obtained.

IMPORTANT: Pressure adjustments to the system must be performed by qualified maintenance personnel only.

Slide Work Circuit

The slide work circuit (see Figure 3-54) consists of one double acting cylinder, one valve bank section with proportional solenoid and two secondary port relief valves.

Pressure Settings	
Slide IN	2000 psi
Slide OUT	2000 psi

Lift Work Circuit

The lift work circuit (see Figure 3-54) consists of two hydraulic motors and brake, one valve bank section with proportional solenoid, a counter balance valve and two secondary port relief valves.

Pressure Settings	
Lift UP	2000 psi
Lift DOWN	2000 psi

Grabber Work Circuit

The grabber work circuit (see Figure 3-54) consists of two double acting hydraulic cylinders, one valve bank section with on/off solenoid and two port relief valves.

Pressure Settings	
Grabber OPEN	1200 psi
Grabber CLOSE	1200 psi

Tailgate Work Circuit

The tailgate work circuit (see Figure 3-55) consists of two double acting hydraulic cylinders, one valve bank section with on/off solenoid, two pilot operated check valves and two secondary port relief valves.

Pressure Settings	
Tailgate UP	2500 psi
Tailgate DOWN	2500 psi

Body Hoist Work Circuit

The body hoist work circuit (see Figure 3-55) consists of one single acting cylinder, one valve bank section with on/off solenoid, two velocity check valves and two secondary port relief valves. However, only one relief valve is truly utilized (*body UP*). The other hydraulic function (*body DOWN*) lowers on the principal of gravity and the physical weight of the body thus enabling the relief port to be set at the very minimum.

Pressure Settings	
Body hoist UP	2500 psi
Body hoist DOWN	500 psi

Hopper Cover/Crusher Panel Work Circuit (optional)

Your Alley-Gator Right-Hand™ may be equipped with a hopper cover or a crusher panel. If so, the 4th working section starting from the left is devoted to the hydraulic functions of the hopper cover or the crusher panel.

The hopper cover/crusher panel work circuit (see Figure 3-55) consists of one double acting cylinder, one valve bank section with on/off solenoid, two flow restrictors and two secondary work port valves.

Pressure Settings	
Hopper cover OPEN	1500 psi
Hopper cover CLOSE	1800 psi
Crusher panel DOWN	2500 psi
Crusher panel UP	2500 psi

Bleeding Air Out of the Lifting Arm Hydraulic Circuit

When replacing a hydraulic cylinder, a holding valve, or when opening the Right Hand™ hydraulic circuit, air may enter the hoses located between the arm and body directional control valve and the arm cylinder. Because air cannot be completely removed by the normal use of the arm, the system must be bled.

The Right Hand™ arm is composed of three hydraulic subcircuits, which must be bled individually depending on the modifications done. Those subcircuits are the following:

Gripper hydraulic circuit

This subcircuit includes two cylinders (bore 1 ½ in., stroke between 5 and 7 in.) a holding valve and a flow divider valve. It controls the open/close motion of the gripper in order to grip containers.

In/Out hydraulic circuit

This subcircuit includes two cylinders (bore 1 ½ in., stroke 54 in.) and a holding valve. It controls the extend/retract motion of the arm in order to reach containers and come back close to the truck for travelling.

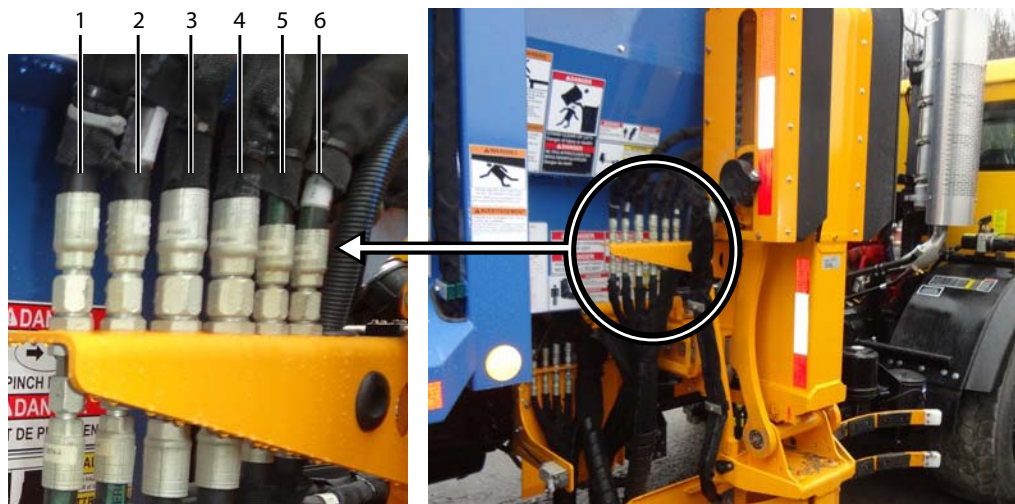
Up/Down hydraulic circuit

This subcircuit includes a cylinder (bore 3 in., stroke 15 ¾ in.) and a holding valve. It controls the lift/lower motion of the arm in order to empty the container in the hopper and bring it back down.

To bleed the gripper circuit:

1. APPLY all safety measures to ensure safety around the vehicle at all times and MAKE SURE to have enough room to fully operate the arm and gripper.
2. MAKE SURE that the parking brake is applied.
3. PARK the arm against the hopper wall, MOVE the gripper to lower position and fully OPEN the gripper.
4. LOOSEN (*do not disconnect*) fitting number 2 (see Figure 3-56).

Figure 3-56 Fittings to loosen



5. Using the joystick or the lever on the arm and body directional control valve, fully EXTEND the gripper cylinders in order to close the fingers.
6. As soon as a constant and uniform oil flow (without air bubbles) is leaking out, TIGHTEN the fitting. Keep the hydraulic function engaged until the fitting is tightened.
7. LOOSEN (*do not disconnect*) fitting number 1.
8. Fully RETRACT the gripper cylinders in order to open the fingers.
9. REPEAT step number 6.

To bleed the In/Out circuit:

1. REPEAT steps 1 through 3 of the gripper circuit bleeding procedure on page 83.
2. LOOSEN (*do not disconnect*) fitting number 3 (see Figure 3-56).
3. Using the joystick or the lever on the arm and body directional control valve, fully EXTEND the rail cylinders of the arm.
4. As soon as a constant and uniform oil flow (without air bubbles) is leaking out, TIGHTEN the fitting. Keep the hydraulic function engaged until the fitting is tightened.
5. LOOSEN (*do not disconnect*) fitting number 4.
6. Fully RETRACT the rail cylinders of the arm.
7. REPEAT step number 4.

To bleed the Up/Down circuit:

1. REPEAT steps 1 through 3 of the gripper circuit bleeding procedure on page 83.
2. LOOSEN (*do not disconnect*) fitting number 5 (see Figure 3-56).
3. Using the joystick or the lever on the arm and body directional control valve, fully EXTEND the lifting cylinder of the arm.
4. As soon as a constant and uniform oil flow (without air bubbles) is leaking out, TIGHTEN the fitting. Keep the hydraulic function engaged until the fitting is tightened.
5. LOOSEN (*do not disconnect*) fitting number 6.
6. Fully RETRACT the lifting cylinder of the arm.
7. REPEAT step number 4.

Hydraulic Safety Valves

Lifting Arm Holding Valves

The Right Hand™ lifting arm is equipped with cylinder-mounted holding valves. See the table below for the various characteristics of the lifting arm holding valves for each arm type.

Arm Type	Movement	Type of Movement Prevented	Cushioning Effect
Std & HD	In/Out	Cylinder Opening (boom Extension)	In - Adjustable Out - non adjustable
HD only	Up Down	Cylinder Closing (gripper body lowering)	Up/Down - Adjustable
Std & HD	Gripper	Cylinder Opening (gripper closure)	None

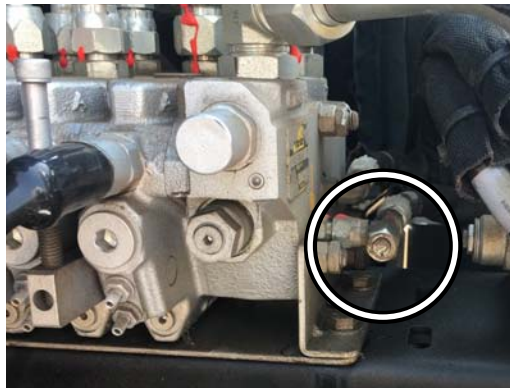
Adjusting Gripper Holding Valve Pressure

NOTE: The lifting arm gripper is equipped with holding valves. 2 cartridges are located just behind the gripper (see Figure 3-58) [for the standard Right Hand™]. For the HD Right Hand™, cartridges are mounted directly on the cylinders (see Figure 3-59).

To adjust the gripper holding valve pressure:

1. APPLY all safety measures to ensure safety around the vehicle at all times.
2. MAKE SURE that the parking brake is applied.
3. LOCATE the gripper holding valves (see Figure 3-58 [standard arm], or Figure 3-59 [HD arm]).
4. CONNECT a pressure gauge to the test port on the arm and body directional control valve.

Figure 3-57 Pressure test port



5. START the engine and ENGAGE the hydraulic pump.
6. Using the pressure gauge on the arm and body directional control valve, ADJUST the opening pressure of each of the gripper closing movement cartridges to 550 psi.

This is the value that should be read when the gripper starts to move.

NOTE: Pressure reading must be done independently for each side of the gripper (single/dual finger side). To do so, place one of the gripper cylinders in fully extended position and activate the lever on the arm and body directional control valve to initiate the closing movement of the other cylinder. Proceed vice-versa for the other side of the gripper.

Figure 3-58 96-gal gripper holding valve

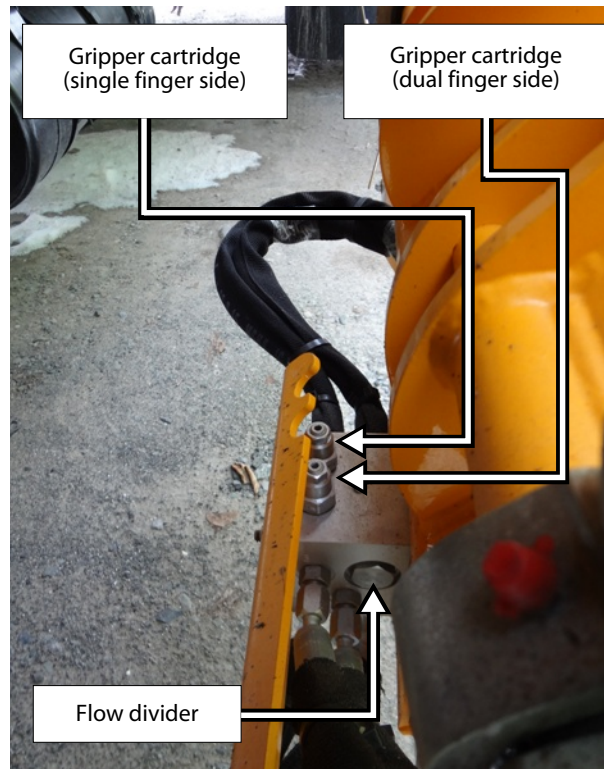
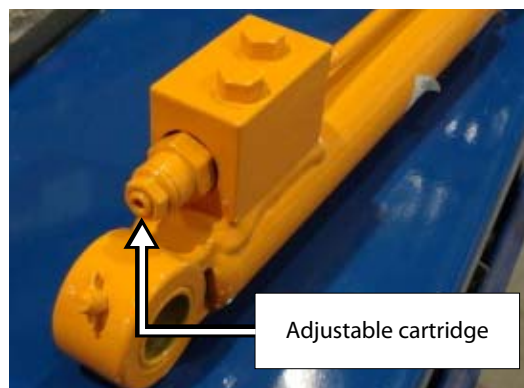


Figure 3-59 Cylinder-mounted holding valve (HD arm gripper)



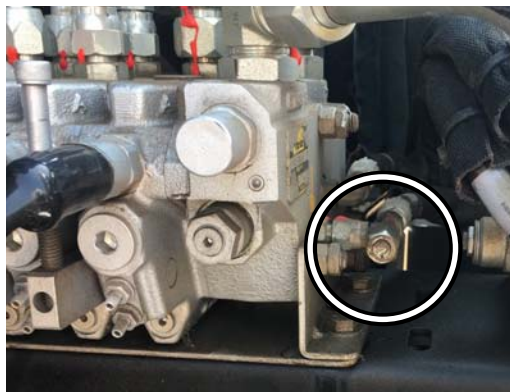
Adjusting In/Out Holding Valve Pressure

NOTE: There is a holding valve mounted on the in/out cylinder (standard and HD).

To adjust the in/out holding valve pressure:

1. APPLY all safety measures to ensure safety around the vehicle at all times.
2. MAKE SURE that the parking brake is applied.
3. LOCATE the holding valve on the in/out cylinder (see Figure 3-61).
4. CONNECT a pressure gauge to the arm and body directional control valve (see Figure 3-60).

Figure 3-60 Pressure test port

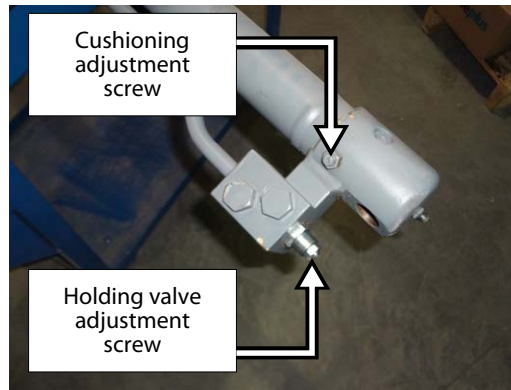


5. START the engine and ENGAGE the hydraulic pump.
6. Using a lever on the arm and body directional control valve, manually EXTEND the Right Hand™ arm gradually.
7. If the gauge does not indicate a pressure of about 650 psi when the automated arm starts extending, ADJUST the in/out holding valve adjustment screw to set the pressure properly.

NOTE: Turn the screw counter-clockwise to increase pressure or clockwise to reduce pressure.

NOTE: This pressure value of 650 psi is a reference value; it could be more or less. It all depends on how much pressure the in/out holding valve needs to resist to an arm slide pull force of at least 1600 lbs up to a maximum of 1900 lbs, at which time the valve must open.

Figure 3-61 Holding valve adjustment screw (in/out cylinder)



NOTE: If the cushioning effect on the retraction stroke needs to be adjusted, simply turn the cushioning adjustment screw accordingly: clockwise to increase cushioning effect; counter-clockwise to reduce it. The cushioning effect on the extension stroke cannot be adjusted.

Adjusting Up/Down Holding Valve Pressure

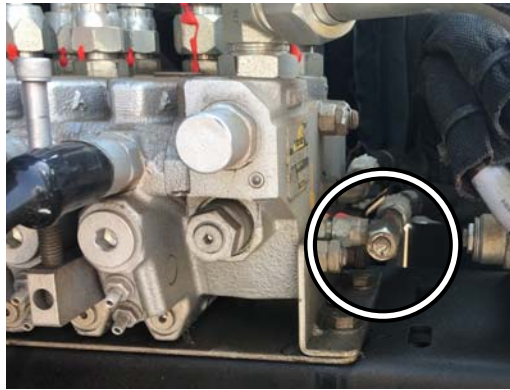
NOTE: The up/down cylinder on a standard lifting arm has no holding valve on it. However, it has a pressure relief cartridge that provides stroke-end cushioning during extension of the cylinder. The up/down cylinder on a HD lifting arm is fitted with a holding valve as well as a cushioning adjustment screw which is used to adjust the stroke-end cushioning during extension/retraction of the cylinder.

NOTE: If the cushioning effect needs to be adjusted, simply turn the cushioning adjustment screw accordingly: clockwise to increase cushioning effect; counter-clockwise to reduce it.

To adjust the up/down holding valve pressure:

1. APPLY all safety measures to ensure safety around the vehicle at all times.
2. MAKE SURE that the parking brake is applied.
3. LOCATE the holding valve on the up/down cylinder (see Figure 3-63).
4. CONNECT a pressure gauge to the arm and body directional control valve (see Figure 3-62).

Figure 3-62 Pressure test port

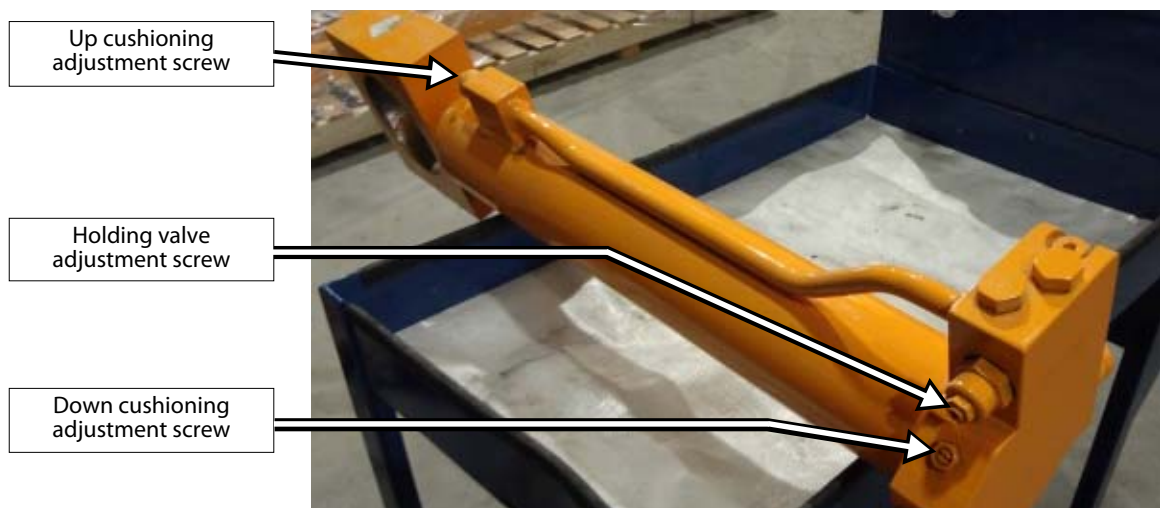


5. START the engine and ENGAGE the hydraulic pump.
6. Using a lever on the valve, manually RAISE the Right Hand™ arm gradually.
7. If the gauge does not indicate a pressure of about 700 psi when the automated arm starts going down, ADJUST the up/down holding valve adjustment screw to set the pressure properly.

NOTE: Turn the screw counter-clockwise to increase pressure or clockwise to reduce pressure.

NOTE: This pressure value of 700 psi is a reference value; it could be more or less. It all depends on how much pressure the up/down holding valve needs to resist to a downward pulling force of at least 1000 lbs.

Figure 3-63 Holding valve adjustment screw (up/down cylinder) - HD arm



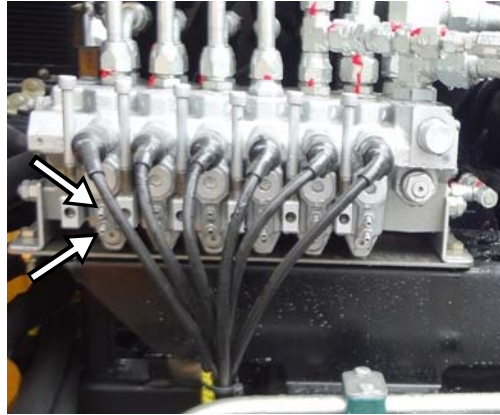
IMPORTANT: Cushioning cartridges on up/down cylinder (see Figure 3-63) should be torqued to 28 ft-lb.

Adjusting Arm Speed

NOTE: No arm speed adjustment is required unless replacing the valve or one of its sections.

Arm speed is controlled by the amount of hydraulic fluid (flow) that is being sent to the arm cylinder. The arm control valve spools can limit the flow of hydraulic oil, depending on the section of the valve¹. Flow is limited by two movement restrictors located on each section.

Figure 3-64 Movement restrictors



Danger!

Do not stand in the path of the arm while carrying out these adjustments.



To adjust arm speed:

1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 20).
2. Secure the area around the path of the arm with barrier tape or barricades.
3. Put the transmission in Neutral, start the engine, and engage the hydraulic pump.
4. Clearly identify the stopper screw on the valve that relates to the proper function (boom extension/retraction, gripper open/close).
5. Move the lever to evaluate arm speed, then release it.
6. Loosen the locknut.
7. Turn the restrictor adjustment screw only one eighth (1/8th) of a turn at a time to clearly feel a significant change in the arm speed.
8. Move the lever again to evaluate arm speed. Repeat until cycle times are properly set (see *Pressure and Cycle Time Chart - Body Circuit* on page 67).
9. Tighten back the locknut.

1. Limiting spool strokes limits the quantity of oil (flow) going through them. Controlling the flow of oil means controlling arm speed.

Control Circuit

The control circuit allows maintenance personnel to check and adjust the system pressure at different points along the circuit. The following items can be checked and adjusted:

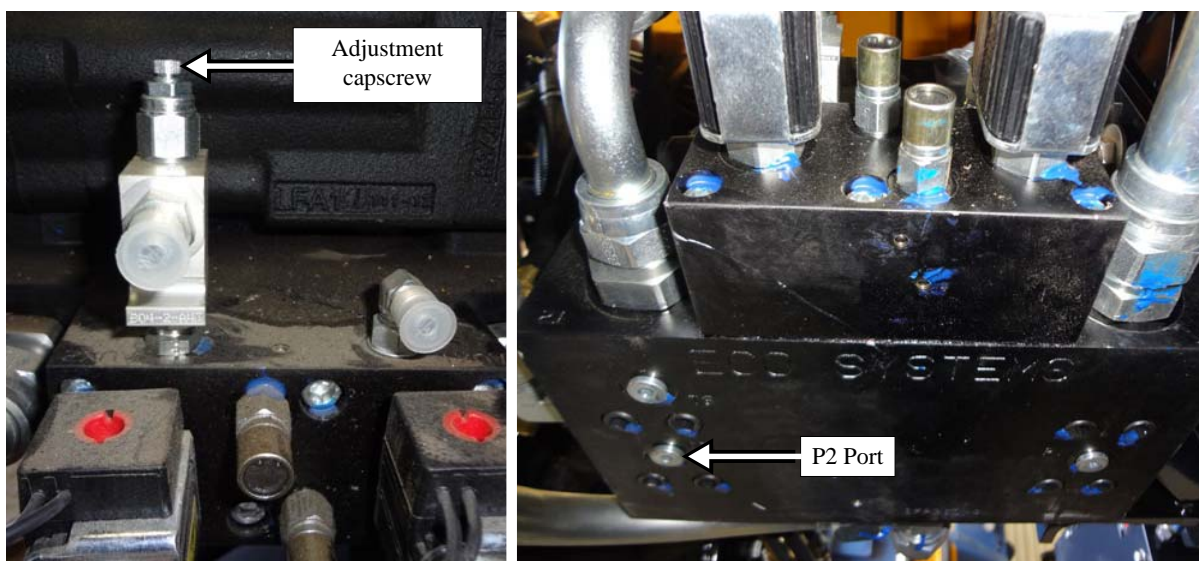
- ♦ Standby pressure
- ♦ Arm pump pressure
- ♦ Packer pump pressure

Adjusting Standby Pressure

To adjust the standby pressure, proceed this way:

1. INSERT a 0-3000 psi gauge into the P2 port (see Figure 3-65).
2. With the pump on and no functions operating, SET pressure to 250 psi by turning the adjustment capscrew clockwise or counter-clockwise depending on the gauge reading (see Figure 3-65).
3. REMOVE the gauge after correctly setting the pressure.

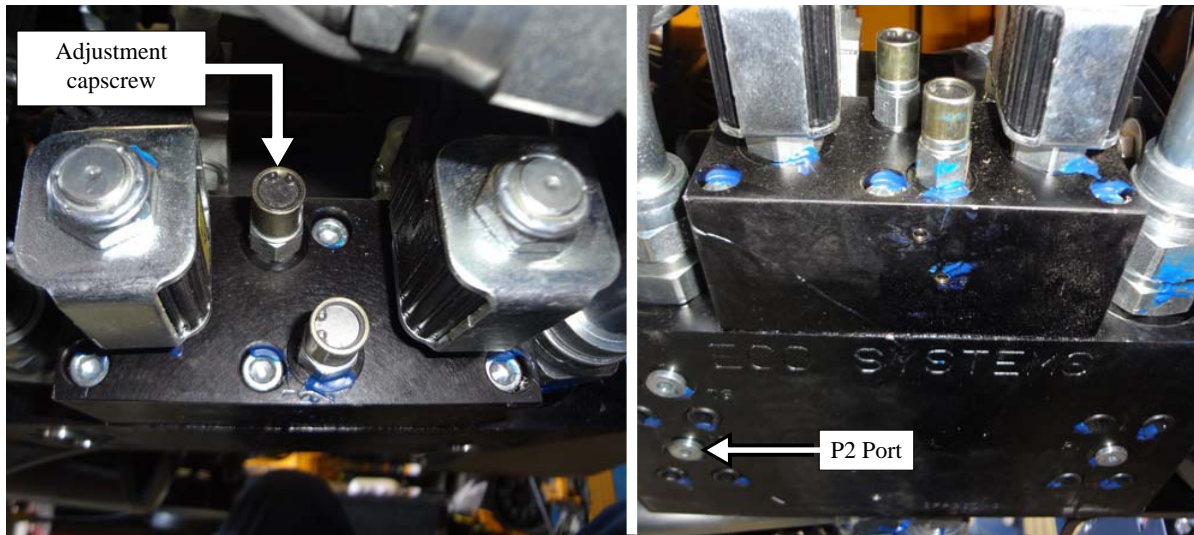
Figure 3-65 Standby pressure adjustment



Adjusting Arm Pump Pressure

To adjust the arm pump pressure:

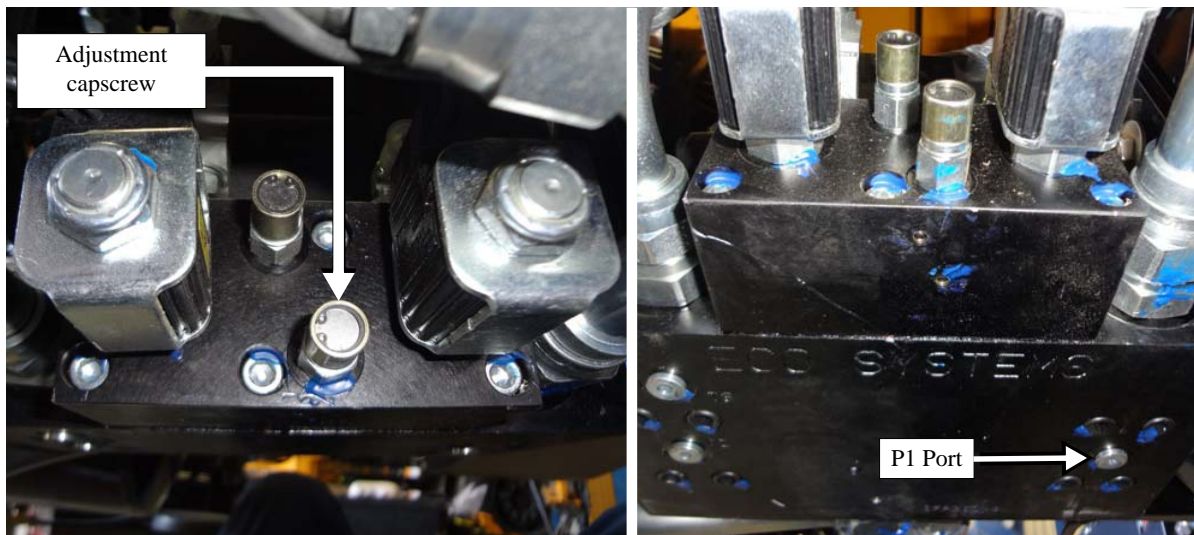
1. INSERT a 0-3000 psi gauge into the P2 port (see Figure 3-66).
2. With the pump on and the arm function stroked to the full up position, SET pressure to 3000 psi by turning the adjustment capscrew clockwise or counter-clockwise depending on the gauge reading (see Figure 3-66).
3. REMOVE the gauge after correctly setting the pressure.

Figure 3-66 Arm pump pressure adjustment

Adjusting Packer Pump Pressure

To adjust the packer pump pressure:

1. INSERT a 0-3000 psi gauge into the P1 port (see Figure 3-67).
2. With the pump on and the packer function stroked to the full up position, SET pressure to 3000 psi by turning the adjustment capscrew clockwise or counter-clockwise depending on the gauge reading (see Figure 3-67).
3. REMOVE the gauge after correctly setting the pressure.

Figure 3-67 Packer pump pressure adjustment

Also, in order to improve the efficiency of the packer, it may be required to adjust the packer counter balance valve and the packer choke valve (see next page).

Adjusting Packer Counter Balance Valve

To adjust the packer counter balance valve, do the following:

1. **ACTIVATE** the packer retract let-off switch.
2. **SCREW IN** the counter balance valve until the packer drifts down.
3. **BACK OUT** the valve until the packer maintains full up position.

Figure 3-68 Packer counter balance valve



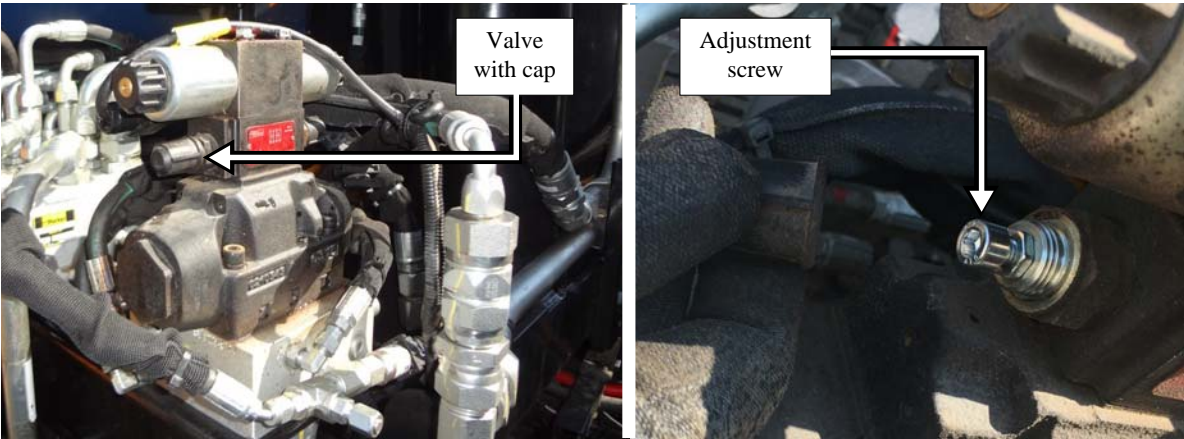
Adjusting Packer Choke Valve

To adjust the packer choke valve:

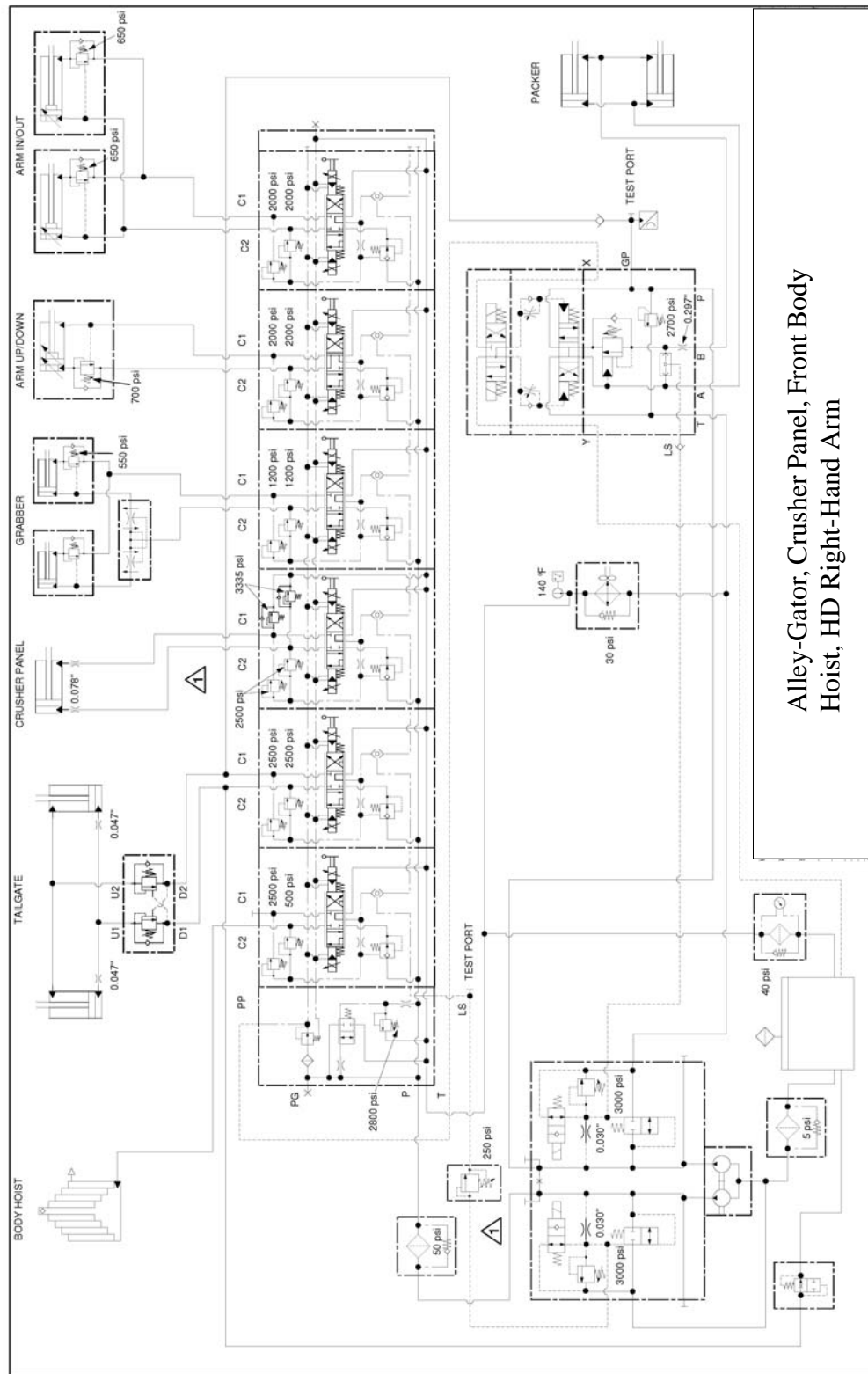
1. **LOCATE** the choke valve on the front side of the packer valve (see Figure 3-69).
2. **REMOVE** cap from the valve.
3. With the auto-pack running, **SCREW** the adjustment screw in until there is approximately $\frac{1}{2}$ second delay between each cylinder stroke shift.

NOTE: If the pendulum packer hits hard at the end of its upper or lower stroke, you can adjust the cushioning speed by which the packer ends its stroke by using this choke valve (see Figure 3-69). Turn the valve clockwise or counter-clockwise to reach the proper adjustment. Several attempts and testing may be required.

Figure 3-69 Packer choke valve (w/ cap - w/o cap)



Hydraulic System Schematic



Troubleshooting Methodology

Troubleshooting is an organized study of the problem and a planned method of investigation and correction.

Think about the following before proceeding:

What were the warning signs prior to failure?
Do not rule out previous failed attempts.
Ensure components and wiring are installed as per factory specs.
Check the obvious things first. Keep it simple.
Work through troubleshooting charts methodically.
Many problems can be traced not to one part alone, but to the relationship of one part with another.
For multiple electrical faults, check the common ground locations.
Use the Troubleshooting Guide as a reference only. It may not contain all the answers.
Use a test light and jumper wire to trace and eliminate.
Identify heat build-up using an infra red sensor.
Carry out flow and pressure tests before removing components.
Keep to Maintenance Schedules.



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